



May 19, 2000

Draft Environmental Impact Statement

EAST LAKE SAMMAMISH INTERIM USE TRAIL

Prepared for:

**King County Department of Construction and
Facilities Management**

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FACT SHEET

PROJECT TITLE

East Lake Sammamish Interim Use Trail and Resource Protection Plan

PROJECT DESCRIPTION

The proposed project is to allow interim public use of the former Burlington Northern railbed along East Lake Sammamish, and to implement a resource protection plan accompanying use of the trail. Three alternatives are being considered: *the Proposed Action*, which routes the Interim Use Trail along the existing railbed; *Alternative 1 Bypass*, an alternative corridor that bypasses a portion of the existing railbed; and *Alternative 2 No Action*, the no action alternative. There is no Preferred Alternative at this time.

Proposed Action

The proposed action includes the following trail construction components:

- Placement of approximately a four inch depth of 5/8" minus gravel along the entire length of the railbed. Approximately 7,000 cubic yards of gravel would be placed.
- Installation of one removable bollard at each side of all trail/roadway crossings. Approximately 122 bollards would be installed.
- Fencing at intervals along the trail for safety or for security of private property.
- Guardrails in areas where the trail is immediately adjacent or very close to roads accessing adjacent properties.
- Signage at regular intervals along the Interim Use Trail and at all intersections.
- Installation of metal railings at existing bridges over Laughing Jacob's Creek, North Fork Issaquah Creek, and Stationing Point 488.
- Vegetation management/removal at locations where maintenance of sight distance is an issue.

The proposed action includes the following resource protection components:

- Split rail cedar fencing adjacent to environmentally sensitive areas such as wetlands, streams, and steep slopes.
- Ditch and culvert maintenance as needed.
- Litter and dog waste control.
- Signage at environmentally sensitive locations such as streams and wetlands.

The proposed action also includes ten public access points along the 10.8 mile length of the trail, as shown in Figures 1-1, 2-1, 2-2, 2-3, 2-4, 2-5, 2-6, 2-7, 2-8, 2-9 and 2-10.

Alternative 1 Bypass

The Alternative 1 Bypass trail is the same as the Proposed Action with the exception of the bypass route that would transition from the railbed at approximately Stationing Point 369 of East Lake Sammamish Shore Lane to the western shoulder of East Lake Sammamish Parkway SE. The Interim Use Trail would continue south along the Parkway until East Lake Sammamish Place SE, where the Interim Use Trail would continue along the western edge of East Lake Sammamish Place SE until it once again connects to East Lake Sammamish Parkway SE. The Interim Use Trail would then be located on the western edge of East Lake Sammamish Parkway SE until SE 33rd Street, where the Interim Use Trail bypass would reconnect with the railbed (Stationing Point 282.5). The bypass route is approximately 1.6 miles long and is located entirely within the City of Sammamish. Figures 1-2, 2-11, and 2-12 illustrates the bypass route. The purpose of the bypass is to avoid bisecting private properties and/or land uses along the railbed. In addition to the components identified for the Proposed Action, Alternative 1 includes the following construction components:

- No new gravel placement in the bypassed portion of the railbed (gravel reduced to 6,000 cubic yards).
- Bypass ramp that allow for the grade transition from the railbed to the roadway.
- Guardrails along access ramp to the bypass location
- Retaining wall along slopes adjacent to the access ramp, a new culvert over an existing ditch, and vegetation removal.
- Painted lane edge along East Lake Sammamish Place SE to delineate the trail edge.
- Modifications to East lake Sammamish Parkway to delineate the separation between vehicular traffic and trail use.

Alternative 1 Bypass includes the same resource protection measures as the Proposed Action. This alternative includes 9 public access points, as shown on Figure 1-2, 2-1, 2-2, 2-3, 2-4, 2-5, 2-6, 2-7, 2-8, 2-9, 2-10, 2-11, and 2-12.

Alternative 2 No Action

Alternative 2 No Action includes basic maintenance of the trail corridor, but does not allow public use of the railbed. The No Action alternative does not include any construction elements, but includes the following resource protection elements:

- Signage
- Litter Control

- Culvert Maintenance

PROJECT LOCATION

The project is located along the eastern shore of Lake Sammamish, extending from north of Marymoor Park in the City of Redmond to the City of Issaquah, just south of Interstate 90 at Gilman Boulevard. The project is 10.8 miles in length, and passes through the Cities of Redmond, Sammamish and Issaquah, as well as unincorporated portions of King County (referred to as Interim Use Trail or Corridor throughout the EIS). Figure 1-1 illustrates the project location.

PROPONENT

The project proponent is King County.

LEAD AGENCY

The lead agency is King County Department of Construction Facility Management (DCFM).

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PERMITS AND LICENSES REQUIRED OR POTENTIALLY REQUIRED

The following permits and approvals may be required for the various alternatives being considered:

- U.S. Environmental Protection Agency 401 Water Quality Certification
- U.S. Army Corps of Engineers Section 404 Permit
- Federal Endangered Species Act Section 7 Compliance
- Washington State Department of Fish and Wildlife Hydraulic Project Approval
- City of Sammamish Right-of-Way Permit

- Shoreline Substantial Development Permit from King County, City of Redmond, City of Issaquah, City of Sammamish
- Clearing & Grading Permit from King County, City of Redmond, City of Issaquah, City of Sammamish
- Public Agency Utility Exception (PAUE) Permit from King County DDES, City of Issaquah and City of Sammamish

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END OF COMMENT PERIOD

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ADDITIONAL ENVIRONMENTAL REVIEW

Because the East Lake Sammamish Trail Master Plan is being developed in phases, the environmental review is similarly phased. The State Environmental Policy Act (SEPA) notes that phased environmental review “assists agencies and the public to focus on issues that are ready for decision and exclude from consideration issues already decided or not yet ready” (WAC 197-11-060-(5)(a)). The first phase of this environmental review process is the EIS for the Interim Use Trail/Resource Protection Plan. The second phase of environmental review will be an EIS on the comprehensive Trail Master Plan. Scoping for the Master Plan EIS will be conducted in October, 2000. The phased review will allow independent evaluation of the Interim Use Trail Plan and the Master Plan.

Because federal funds are being used to implement the Interim Use Plan, the project will also be reviewed under the National Environmental Policy Act (NEPA). Following release of the Final EIS, a document satisfying NEPA requirements will be submitted to the Washington Department of Transportation (WSDOT) and Federal Highway Administration (FHWA) for review. These agencies will determine whether additional environmental review is necessary.

OTHER RELATED MATERIAL

A biological assessment will be prepared and submitted to the appropriate regulatory agencies for review, pursuant to Section 7(c) of the Endangered Species Act.

ADDITIONAL COPIES

Limited copies of this document have been printed and made available for public distribution for a fee of \$22. Limited copies of the appendices are available for an additional fee of \$41. CD's with the EIS text are available for \$4. The EIS text will also be available on the Internet. Copies in alternative format can be made available; call (206) 789-9658 to make arrangements. Copies can be purchased at DCFM, 500 Fourth Avenue, Room 320, Seattle, from 8:30 am to 4:30 p.m., Monday through Friday; and Thursdays only at Issaquah District Court, 5415 220th Avenue SE, Issaquah, from 5:00 p.m. to 7:00 p.m. Please bring either check or money order.

CHAPTER 1 SUMMARY

This chapter summarizes the purpose of the project and provides a description of project alternatives. A discussion is provided to briefly summarize potential project impacts, possible mitigation measures, significant unavoidable adverse impacts, and cumulative impacts. Chapter 2 provides further discussion of the project description, project need and objectives, history, the relationship of the interim use plan to the master plan, alternatives, and scoping comments received.

PROJECT OBJECTIVES

The objectives for the proposed action, as stated in the *East Lake Sammamish Trail Interim Use and Resource Protection Plan* (Draft, King County, 1999), are as follows:

- Open the railbed to the public for interim use during trail master planning and construction phases. The construction timeline for the final, paved trail is intended to be completed in phases and dependent upon the approval of a Trail Master Plan following further public review and upon the availability of funds. Even with approval and financing, such final trail construction is anticipated to be implemented in phases, and is not anticipated to be complete until 2006 to 2015.
- Protect the environment.
- Create an interim trail that is safe for trail users and adjacent property owners.
- Build a positive, long-term relationship with local residents, trail users, and other constituents.
- Establish and maintain a trail that is a good neighbor to adjacent property owners and local communities.

PROJECT ALTERNATIVES

Under the Proposed Action, King County proposes to construct an 8- to 12-foot wide, 10.8 mile gravel trail for pedestrian and bicycle use on the former BNSF railbed located east of Lake Sammamish. See Figure 1-1. The proposed East Lake Sammamish Interim Use Trail would be located between the SR-520 off-ramp in Redmond and NW Gilman Boulevard in Issaquah and would be open seven days a week for public use during daylight hours. The Interim Use Trail, or portions of it, would remain in operation until a master plan for a permanent trail is completed and approved and the permanent trail is constructed.

The proposed alternate route (Alternative 1 Bypass) would transition from the railbed at approximately Stationing Point 369 to the western shoulder of East Lake Sammamish Parkway SE. See Figure 1-2. The Interim Use Trail would continue south along the Parkway until East Lake Sammamish Place SE, where the Interim Use Trail would continue along the western edge of East Lake Sammamish Place SE until it once again connects to East Lake Sammamish Parkway SE. The Interim Use Trail would then be located on the western edge of East Lake

Sammamish Parkway SE until SE 33rd Street, where the Interim Use Trail bypass would reconnect with the railbed at Stationing Point 282.5. The bypass route is approximately 1.6 miles long and is located entirely within the City of Sammamish. The purpose of the bypass route is to avoid impacts to properties and existing land uses where the railbed occurs between residences and Lake Sammamish.

The No Action Alternative would not provide for any Interim Use Trail construction.

RESOURCE PROTECTION AND MAINTENANCE/OPERATION MEASURES

The East Lake Sammamish Trail Interim Use and Resource Protection Plan (Draft, King County, 1999) was designed to “promote human safety, protect the environment, deter trespass onto adjacent property, inform trail users regarding trail regulations, and create an aesthetically pleasing interim trail.” The plan describes maintenance activities consistent with standard King County parks maintenance practices including frequent, scheduled trail inspections to look for and address drainage problems, surface conditions, dump sites, illegal activity, and access issues at the crossings and trail heads. Specific resource protection and maintenance/operation measures that will be implemented as part of the Interim Plan include:

- Split Rail Fencing – Four-foot split-rail cedar fences will be located adjacent to environmentally sensitive areas such as wetlands, streams, and steep slopes. The fences will be located a minimum of three feet and a maximum of six feet from the Interim Use Trail’s edge.
- Drainage Maintenance – Ditches and culverts will continue to be maintained as needed, to allow for effective drainage. Nominal work will be done to repair damage, restore drainage paths and water flow, and undertake proactive measures in identified areas where there is a clear and present potential for acute drainage incidents. This work will continue to occur regardless of the selected alternative.
- Litter and Dog-waste Control – Litter and dog-waste bag receptacles will be located along the Interim Use Trail at public access points.

SUMMARY OF MAJOR CONCLUSIONS

The Proposed Action and Alternative 1 do not significantly differ in their impacts to the natural environment. Alternative 1 reduces perceived impacts to approximately 47 property owners whose properties or land uses are bisected in Segment 4D-6A of the trail by re-routing an approximately 1.6 mile section of the Interim Use Trail away from their properties onto East Lake Sammamish Place SE and East Lake Sammamish Parkway SE. See Figure 1-2. This alternative transfers some of these impacts to approximately 13 properties that front on East Lake Sammamish Place SE but not on the railbed. The alternatives are largely similar in their consistency with the project objectives identified above. However, re-routing the Interim Use Trail off the railbed and onto East Lake Sammamish Place SE and East Lake Sammamish Parkway SE (Alternative 1 Bypass) is less safe for trail users than the Proposed Action because of potential pedestrian and bicycle conflicts with existing vehicular traffic on the bypass

roadways, and 26 additional driveways or roads which intersect with the bypass route. Alternative 2, the No Action Alternative, has minimal impacts on the natural and built environment, but is not consistent with those project objectives identified in the *East Lake Sammamish Trail Interim Use and Resource Protection Plan* (Draft, King County, 1999).

The following paragraphs summarize impacts and proposed mitigation for each of the environmental elements identified during Scoping for the Interim Use Trail Plan. There are no impacts associated with Alternative 2, the No Action Alternative, except where specifically noted.

EARTH AND GROUNDWATER

Approximately 7,000 cubic yards of gravel will be placed on the existing railbed as part of implementing the Proposed Action. This amount would be reduced to approximately 6,000 cubic yards for Alternative 1. Re-routing the Interim Use Trail as proposed for Alternative 1 reduces the potential for erosion along the project corridor, because it avoids areas of highest existing slopes, but does not eliminate this impact potential. There is a potential for erosion and sedimentation to occur accompanying ongoing culvert maintenance under the Proposed Action and Alternative 1, particularly when accumulated sediments in culverts/ditches are removed. Proposed mitigation measures are expected to minimize erosion and sedimentation. No long-term impacts to soils or geologic features have been identified. No impacts to groundwater quantity or quality are anticipated.

SURFACE WATER

Gravel placement along the railbed corridor or Interim Use Trail could result in temporary increases of sediment discharge to nearby surface waters. The use of construction best management practices would limit this impact. Hydrologic impacts to streams are not anticipated under either the Proposed Action or Alternative 1 because the imperviousness of the trail would not change from existing conditions. There is a potential for increased fecal coliform inputs to nearby waterways as a result of increased dog use in the corridor. However, the Interim Use Trail would not specifically be designated as a dog use area, and pet waste collection would be required with collection areas installed. Increased bicycle and pedestrian use of the railbed corridor could result in increased erosion of the trail shoulder near ditches, wetlands, and streams. These impacts would be mitigated by the construction of split-rail fencing around sensitive areas.

PLANTS AND WETLANDS

The proposed Interim Use Trail would be built on the existing railbed; therefore, impacts to plants are not anticipated. Several trees along the route have been identified as sight distance hazards at intersections; these trees would be removed. Minor impacts to wetlands may occur as a result of the accidental spillage of gravel during trail surfacing. Portions of five poorly functioning wetlands (totaling 0.09 acre) are located on the railbed and would be subject to

filling as a result of the Proposed Action. Alternative 1 would avoid one wetland impacted as a result of the Proposed Action, but would impact a different wetland area for ramp construction, resulting in 0.1 acre of total wetland impact. Wetland mitigation by replacement or enhancement would be conducted in accordance with applicable regulations. Fencing would be placed to limit access to sensitive areas and to reduce the risk of trampling from humans and pets. No impacts to threatened, endangered, or sensitive plant species are anticipated.

FISH AND WILDLIFE

Impacts to fish and wildlife are similar for both the Proposed Action and Alternative 1. Construction activities would temporarily impact wildlife through noise and visual disturbance. Sensitive wildlife may be temporarily displaced by noise impacts; however, they would be expected to return after construction was complete. Fencing along portions of the trail could potentially inhibit wildlife access to Lake Sammamish and other sensitive habitats. Because the fencing is intermittent, access will not be prohibited. Impacts to threatened and endangered wildlife species are not anticipated.

Construction activities may result in temporary sediment inputs to local streams which may impact fish habitat. These impacts would be minimized by the use of erosion and sedimentation control measures. Increased human use of the corridor as a trail could result in human intrusion into fish-bearing streams; however, mitigation measures including signage and fencing are expected to minimize this impact. In-stream work associated with culvert and bridge maintenance and repair would create short-term impacts associated with construction sediment, but generally would improve fish passage in the stream when construction is complete. Impacts to threatened or endangered fish species are not anticipated.

NOISE

Temporary noise level increases would be experienced during construction of the Proposed Action or Alternative 1. Construction would only occur during weekday hours. Long-term sources of noise resulting from the trail include spoken conversations, footfalls on the gravel surface, and noise from bike traffic. This impact is anticipated to be minor because of the dominating noise source on East Lake Sammamish Parkway and the generally low level of noise from actual trail use.

LAND AND SHORELINE USE

Placement of gravel on the trail would impact an estimated 340 residences for a one-to-two-day period associated with the Proposed Action. Alternative 1 reduces impacts to approximately 70 property owners. Use of the trail may result in a perception of reduced privacy and visual impacts, potential slight property value impacts to selected properties, and safety-related impacts to adjacent properties. The greatest impact would be to the properties or current land uses that are bisected by the corridor. While these impacts would be unavoidable to the adjacent land uses and would likely to be perceived as significant to some individuals, they would not likely be

considered significant from a regional perspective. Measures to reduce impacts include fencing and signage to delineate public versus private property. Both the Proposed Action and Alternative 1 are consistent with adopted land use and recreation plans and policies, and the Growth Management Act. Alternative 2, the No Action Alternative, would not be consistent with adopted plans and policies to provide a regional trail on the former Burlington Northern railbed.

TRANSPORTATION

For the Proposed Action, an estimated 7,000 cubic yards of gravel would be placed on the railbed. This would result in approximately 1,428 one-way truck trips over the approximately 8-12 weeks of construction. For Alternative 1, an estimated 6,000 cubic yards of gravel would be placed on the trail surface, resulting in approximately 1,216 one-way truck trips.

Once completed, the Proposed Action would generate an estimated 200 one-way vehicle trips on a peak weekend day. A daily parking demand of up to 125 vehicles could be expected on a summer weekend. It is anticipated that parking will be available at area parks. Signs would be posted to prevent illegal parking in unauthorized areas. An increase in illegal parking may be noticed along the corridor and at Lake Sammamish State Park. Increased patrols and signage would minimize this impact over the long-term.

There is a potential for conflicts between trail users and vehicles at intersections with roadways and driveways. Regulatory signs for trail users and vehicles would be posted at intersections. Removable bollards would be installed at trail/roadway crossings to allow emergency/maintenance vehicle access and restrict motor vehicle access to the trail.

For Alternative 1, East Lake Sammamish Parkway would require re-striping. Locating a portion of the trail on East Lake Sammamish Parkway could have an impact on traffic operations and result in increased safety hazards for trail users.

For the No Action Alternative, pedestrians and cyclists would continue to use the East Lake Sammamish Parkway shoulders for travel. Such use poses greater safety concerns than the other two alternatives because there is no separation from motorized vehicle travel lanes.

PUBLIC SERVICES AND UTILITIES

Impacts to utilities are anticipated to be minor; however, disruption to utilities such as water, sewer or electric service located along East Lake Sammamish Parkway is possible with Alternative 1. Impacts related to public services (i.e., police, fire, ambulance) are anticipated to be minor. Most local public service jurisdictions do not anticipate the need to increase staff or services as a result of the Proposed Action; however, the City of Sammamish has identified a need for additional services. Public safety patrols along East Lake Sammamish Parkway may need to be increased as a result of Alternative 1. The need for additional patrol and maintenance (e.g., parking enforcement, restroom maintenance, litter control) may be required at Marymoor Park. To minimize impacts, trail use will be limited to daylight hours. Emergency service

agencies will be given keys to unlock the bollards at all corridor entrances. There will be no direct impacts to public services and utilities under the No Action Alternative.

CULTURAL AND HISTORICAL RESOURCES

Subsurface disturbance associated with the Proposed Action and Alternative 1 are limited; therefore, potential impacts to cultural and historical resources are expected to be minimal. Maintenance of culverts has a slight potential to disturb cultural resources if excavation occurs. Installation of signs and fencing have a limited potential to disturb cultural resources associated with excavation for post placement. Construction of the ramp associated with Alternative 1 may increase the potential for disruption of buried cultural resources. An archaeologist should be present during all construction excavation activities. No interpretive signage would be posted for the Interim Use Trail.

AESTHETICS

Impacts related to the general aesthetics and visual quality of the railbed and corridor are anticipated to be minimal under both the Proposed Action and Alternative 1. The corridor has been cleared with little or no vegetation since the opening of the Burlington Northern Railroad; therefore, the general look will remain unchanged. Split-rail fencing would be installed in areas where wetlands and streams need to be protected. Chain-link fencing is proposed in areas where less than 20 feet exist between the trail and a home, and in areas where docks and waterfront property create a safety and/or security concern. Slats may be used for privacy at some locations. This will result in potential visual impacts to some existing residents. Views of the fencing from residences will be minimized; however, some residents have stated that they perceive this as a negative impact. Alternative 1 would avoid visual impacts to approximately 47 residences whose existing properties and/or land uses are bisected by the trail. However, shifting the trail to existing roadways would alter the views of approximately 13 properties adjacent to the access ramps and along the bypass route.

RECREATION

During construction of the trail, residents along the corridor may experience temporary disruptions to recreational activities in their yards and on their boat docks. These impacts would typically last a week or less for any individual property owner. The Interim Use Trail is anticipated to attract up to 500 users per day during peak periods. Long-term impacts include the potential for non-motorized accidents with trail users, and incidents with dogs on the trail. Trail users may disrupt passive recreation activities at adjacent residences. There is potential for some trail users to trespass onto private lands of adjacent property owners. The gravel surface proposed for the trail may benefit some users and hinder others. Gravel surfaces are not conducive for some disabled trail users. The Alternative 1 bypass ramp would be designed to meet the Americans with Disabilities Act (ADA) grade requirements. Restroom facilities are not proposed along the trail, which may result in increased use of other available public restroom

facilities or illicit use of private property. The County will explore options for placement of portable restrooms at an appropriate location.

There are increased safety concerns for trail users associated with Alternative 1 due to the proximity to vehicular traffic on East Lake Sammamish Parkway and East Lake Sammamish Place SE. Development of the proposed Interim Use Trail is consistent with adopted recreation plans and policies.

As the region's population continues to grow, demand for trails is expected to expand. The No Action Alternative would result in this increased demand being met by existing trail facilities in the region. The increased use of roadways for non-motorized transportation would result in an increased potential for accidents with motorized vehicles. This alternative is not consistent with adopted plans and policies, including the King County Park, Recreation and Open Space Plan, King County Urban Trails Plan, King County General Bicycle Plan, King County Regional Trails Plan, King County Nonmotorized Transportation Plan, City of Redmond Parks, Recreation and Open Space Plan, and the City of Issaquah Final Comprehensive Plan.

Additional Environmental Evaluation of Interim Plan

Because federal funds are being used to implement the Interim Use Plan, the project will also be reviewed under the National Environmental Policy Act (NEPA). Following release of the Final EIS, a document satisfying NEPA requirements will be submitted to the Washington Department of Transportation (WSDOT) and Federal Highway Administration (FHWA) for review. These agencies will determine whether additional environmental review is necessary. Based upon evaluations conducted as part of the Interim Use Trail EIS, findings of potentially significant impacts are not anticipated.

CHAPTER 2 PROJECT DESCRIPTION AND ALTERNATIVES

PROJECT DESCRIPTION

Project Need and Objectives

The purpose of the proposed *East Lake Sammamish Interim Use Trail and Resource Protection Plan* is to establish public use of the railbanked Burlington-Northern Railroad right-of-way and to manage the corridor in a way that protects human safety and the environment. As early as 1971, this corridor was identified by King County as a future urban trail corridor and was included in the *King County Urban Trails Plan* (1971). The growing demand for public recreation venues, including trails, has been continually addressed in county and city planning documents since the *King County Urban Trails Plan* was first adopted in 1971 (for a full discussion, see Section 3.11, Recreation). The East Lake Sammamish Trail has been identified as an important link in the County's regional trail system, because it will not only provide recreational opportunities and open space, but has the potential for use as a transportation corridor as well.

In 1998, the King County Council directed the King County Park System to prepare an Interim Use Trail Plan for the East Lake Sammamish Corridor (Ordinance 13340, September 1998). In keeping with this direction, as stated in the *East Lake Sammamish Trail Interim Use and Resource Protection Plan* (Draft, King County, 1999), the project objectives are:

1. Open the railbed to the public during master trail planning and construction phases.
2. Protect the environment.
3. Create an interim trail that is safe for trail users and adjacent property owners.
4. Build a positive, long-term relationship with local residents, trail users, and other constituents.
5. Establish and maintain a trail that is a good neighbor to adjacent property owners and local communities.

Project History

Following its inclusion in the 1971 *King County Urban Trails Plan*, the proposed East Lake Sammamish Trail was included in the *King County Regional Trail Plan* (1992) and the *King County Non-motorized Transportation Plan* (1993). The trail was also specifically included as part of the *King County Comprehensive Plan* (1994) and the *King County Park, Recreation, and Open Space Plan* (1996). The trail has also been included in at least three other city and county planning documents (See Section 3.6, Land Use Plans and Policies). These documents identify the proposed East Lake Sammamish Trail as an important recreational facility as well as a transportation corridor.

A number of alternative plans have been developed for the proposed trail. In 1986, the King County Department of Public Works, Engineering Services Division retained the consulting firm of Cottingham Transportation Engineering to conduct a study of potential bicycle/pedestrian trail alternatives along the East Lake Sammamish corridor. This study, entitled “*Bikeway / Pedestrian Trail Corridor Study for the East Lake Sammamish Parkway*” (also known as the “*Cottingham Study*”; 1986) considered three alternatives. Alternative I proposed five-foot minimum shoulders on each side of East Lake Sammamish Parkway for use as bicycle/pedestrian lanes. These bicycle/pedestrian lanes would not be physically separated from the road (i.e., by Jersey barriers). Alternative II proposed a twelve-foot pedestrian/bicycle lane on the west side of East Lake Sammamish Parkway separated from the road by six-inch curb and gutter and a five-foot shoulder. Alternative III proposed a twelve-foot-wide trail facility located on the railroad right-of-way. The *Cottingham Study* recommended a combination of all three alternatives to be implemented in two phases. Phase I would implement Alternative I. Phase II would first implement the west shoulder-only bicycle/pedestrian lane with future construction of the bicycle/pedestrian trail on the railroad right-of-way wherever feasible when railbed becomes available. The recommendations of the study were not implemented by the County.

In addition to the inclusion of the trail in various planning and policy documents, the King County Council has passed ordinances in support of the East Lake Sammamish Trail through its adoption of the 1997, 1998, 1999, and 2000 King County budgets. Each budget contained acquisition, operations, and/or Capital Improvement Program money for the East Lake Sammamish Trail project (Ordinance 12538, 1997 Budget; Ordinance 12926, 1998 Budget; Ordinance 13340, 1999 Budget; Ordinance 13678, 2000 Budget).

In 1996, the Burlington-Northern/Santa Fe Railroad (BNSF) ceased operations along the proposed East Lake Sammamish Trail corridor. In 1997 King County and the Land Conservancy of Seattle and King County (The Land Conservancy) requested that the Surface Transportation Board impose interim trail use/railbanking on this corridor under 16 U.S.C. 1247(d). Action was deferred by the Board until August 1998 when the BNSF notified the Board of its intent to act on its abandonment exemption authority and joined the requests for interim trail use of this corridor. The application to railbank this corridor was approved by the Surface Transportation Board (Decision Summary, September 6, 1998) in August 1998 and a Notice of Interim Trail Use (NITU) was approved for issue. The corridor was sold to The Land Conservancy that same month. In November 1998, King County purchased the corridor from The Land Conservancy with the intention of developing the corridor into the East Lake Sammamish Trail.

King County’s Department of Construction and Facilities Management (DCFM) is the lead King County agency for planning and implementing the Interim Use Trail and Resource Protection measures. King County’s Department of Parks and Recreation is currently maintaining the corridor (e.g., culvert maintenance, litter removal). Should the Interim Use Trail be constructed and opened to the public, Parks and Recreation will continue to maintain the corridor and will assume responsibility for all other operational needs.

The Land Conservancy retained rail salvage rights and transferred those rights to Sammamish Transportation Co., who sold them to Washington Enterprises Unlimited at the same time as the land was sold to King County. Washington Enterprises Unlimited began removal and salvage of the rails and ties in December of 1998. In March of 1999, a consulting firm (Parametrix Inc.) was retained to develop, implement, and oversee an erosion and sedimentation control plan for

the rail salvage operation. The consultant made weekly reports to King County Parks regarding erosion and sedimentation control impacts and efforts by the rail salvager to address those. The salvage operation consisted of the following items: spike removal, bolt cutting, rail removal, and tie removal. The salvage operation was performed from December 1998 through August 1999 and covered the entire length of the railbed within the project area. Some sections were not salvaged due to sensitive conditions (e.g., wetlands). Work crews stockpiled both rails and ties at crossings with access roads. Some of the remaining rails and ties have been removed from the existing railbed as part of the on-going resource protection measure, however approximately 5,000 linear feet still remain. Because of the continual heavy equipment use on the railbed during the salvage operation, additional erosion control measures were called for, and gravel and rock were used to cover bare soils and stabilize the railbed to continue salvage work. As part of the salvage operation, 5/8" to 4" rock and gravel was laid on the railbed as an erosion control measure. A total of approximately 4,000 cubic yards of rock and gravel was placed in the railbed over an eight-month period. Rail and tie removal and salvage were performed under a National Environmental Policy Act (NEPA) Categorical Exclusion (CE) that was prepared by the Surface Transportation Board in conjunction with the federal action of railbanking. Although local permits were not required for the federally authorized salvage work, erosion control measures were planned and implemented under the direction of King County's permitting authority, the Department of Development and Environmental Services.

In the summer of 1999, King County DCFM, working with a consultant team, initiated a public review process to identify the major issues associated with implementation of the proposed Interim Use Trail along the corridor. Through a series of public workshops, stakeholder meetings, Citizen Advisory Group meetings, and public scoping meetings, three broad categories of issues emerged regarding interim trail use: safety for adjacent property owners and trail users; environmental protection and stewardship of natural resources; maintenance and operations to ensure ongoing trail and public land management (King County, 1999). Other issues of importance to adjacent property owners were raised, including the effect the trail might have on property values and the underlying ownership of the corridor following its transfer from the railroad to the County via the Land Conservancy.

King County and its consultants then began the Phase I environmental review process for the Interim Use Trail. Evaluations have been conducted consistent with the State Environmental Policy Act (SEPA) as well as the NEPA requirements. All environmental issues identified during the public review process as well as those identified from agency workshops were summarized and are included in a subsequent section of this Chapter.

Environmental Review

The East Lake Sammamish Trail Master Plan is being developed in phases, and the environmental review process is similarly being conducted in phases. SEPA regulations note that phased environmental review "assists agencies and the public to focus on issues that are ready for decision and exclude from consideration issues already decided or not yet ready" (WAC 197-11-060(5)(a)).

The project will also be subject to review under NEPA, which will be conducted by the Washington Department of Transportation and the Federal Highway Administration. NEPA regulations also allow for a phased approach, referred to as tiering. "Agencies are encouraged to

tier their environmental impact statements to eliminate repetitive discussions of the same issues and to focus on the actual issues ripe for decision at each level of environmental review” (40 CFR Ch. V Part 1502 Sec. 1502.20). “Tiering...helps the lead agency to focus on the issues which are ripe for decision and exclude from consideration issues already decided or not yet ripe” (40 CFR Ch. V Part 1508 Sec. 1508.28(b)).

A number of decisions to be made during the Master Planning process are not yet ready for evaluation or decision. These decisions include the final alignment of the trail, the ultimate use of the trail, including the long-term potential for equestrian as well as pedestrian and bicycle usage, the trail configuration and width, trail amenities and support facilities, and other design/usage features. Such final trail decisions are complex and controversial and require further extensive public process and debate in order to provide meaningful evaluations. The Master Planning process is expected to run for an approximately 18 month period. The process will involve public workshops and meetings to collect ideas and concerns, preparation of master plan alternatives, presentation of master plan alternatives at public forums, scoping, and preparation of Phase II EIS to evaluate master plan alternatives. It is the County’s objective to allow public use of the railbed while these decisions are being made. The Interim Use Trail EIS evaluates the impacts of allowing this public use and providing resource protection and maintenance measures while the Master Plan elements are being defined and evaluated.

Relationship of Interim Use to Master Plan

As previously described, the Interim Use Plan is the first phase of development of the East Lake Sammamish Trail. The phased review process was chosen in order to allow and evaluate interim use of the corridor for a regional trail while the Master Plan is under development. The Interim Use Plan addresses issues pertinent to interim use and resource protection. Irrespective of whether the County ultimately determines to approve a final trail at this point in its subsequent Master Planning process, the Interim Use Trail and resource protections considered in this EIS provide public benefits such as interim recreational opportunities, erosion/sediment controls, and natural resource preservation. As such, even with approval of an interim trail, the County could decide to terminate trail use as part of its final Master Plan process. The Interim Use Trail will be in place until a Master Plan is developed and implemented, or until a decision is made to disallow public use of the railbed. Based on the current schedule for developing and implementing improvements recommended in the Master Plan, interim use is anticipated to expire by 2015 at the latest. Conversely, this phased review also allows for development of the East Lake Sammamish Trail under the Master Plan if the Interim Use Plan is not implemented. Master Plan alternatives will include routing options, trail configuration alternatives, usage options, as well as the option to discontinue public use. The Master Plan EIS will consider the impacts of implementing and operating these alternatives.

Anticipated Project Usage

It is difficult to project anticipated trail usage with precision because there is a lack of existing user data in the region for gravel trails. User projections were developed using data from unpaved trails in Oregon and paved and unpaved local trails. The Interim Use Trail is anticipated to attract up to 500 trail users per day during peak periods. User types are expected to be split between walkers, joggers, and bicycles; interim use will not include equestrians. These

user numbers are based on existing research data and a recent observation of trail use on a local trail. Research data indicate that usage in rural areas on unpaved trails is approximately 50 to 60 users per day in early summer to peaks of approximately 300 per day (Oregon Department of Transportation, 1988), with approximately 75 percent of usage occurring on weekends. Recent data collection on the Snoqualmie Valley Trail in early May indicated peak user numbers of 116 over a three-hour period, on the gravel trail near Carnation. Comparing these data with peak usage numbers of 3,000 to 5,000 users per day for the Burke-Gilman Trail, and adjusting for anticipated reduced usage associated with a gravel surface trail, up to 500 users per peak day appears to be a reasonable estimate, given the population base within the trail service area. Future growth in the region is expected to result in greater demand for recreational facilities, including trails. The proposed East Lake Sammamish Interim Use Trail is anticipated to absorb some of this future demand if the Interim Plan is implemented.

Project Alternatives

SEPA requires that an EIS identify and discuss reasonable alternatives to the Proposed Action. Alternatives discussed need not be exhaustive, but must present sufficient information for a reasoned choice of alternatives. The word “reasonable” is intended to limit the number and range of alternatives, as well as the amount of detailed analysis for each alternative. Reasonable alternatives shall include actions that feasibly attain or approximate a proposal’s objectives but at a lower environmental cost or decreased level of environmental degradation (WAC 197-11-440).

It is not necessary to evaluate every alternative iteration. Selecting alternatives that represent the range of options provides an effective method to evaluate and compare the merits of different choices. The final action chosen by decision-makers need not be identical to any single alternative in the EIS, but must be within the range of alternatives discussed (Ecology, 1998).

As potential alternatives are identified, they should be measured against certain criteria:

Do they feasibly attain or approximate the proposal’s objectives?

Do they provide a lower environmental cost or decreased level of environmental degradation than the proposal (Ecology, 1998)?

The alternatives evaluated are consistent with these criteria. Alternative 1 is generally similar to the Proposed Action in environmental impacts, however, it does reduce some perceived impacts to approximately 47 property owners, whose properties and/or land uses are bisected by the railbed. Alternative 1 approximates the proposals’ objectives, but is not fully consistent because it departs from the railbed.

Proposed Action

Under the Proposed Action, King County would construct an 8- to 12-foot wide, 10.8 mile gravel trail for pedestrian and bicycle use on the former BNSF railbed located east of Lake Sammamish. See Figure 2-1, 2-2, 2-3, 2-4, 2-5, 2-6, 2-7, 2-8, 2-9, and 2-10. The proposed East Lake Sammamish Interim Use Trail would be located between the SR-520 off-ramp in Redmond and NW Gilman Boulevard in Issaquah and would be open seven days a week for public use during daylight hours. Project elements are summarized in Table 2-1.

Table 2.1 East Lake Sammamish Trail - Interim Use and Resource Protection Plan - Proposed Action

Interim Trail Segment	Figure No.	Blockades	Gravel (cy)	Trail Length (lf)	Bollards	Trail Signs Safety	Trail Signs Etiquette	Roadway Signs	Bridge Upgrades	Split-rail Fence (lf)	Chain-link Fence (lf)	Guardrail (lf)	Access Points
1	1	3	364	2950	2	5	2	4		680			3
2A	1,2		358	2900	2	2	2	2		3480			
2B	2		500	4050	6	6	3	6		1650	2310	350	
3A	2		173	1400	2	2	1	2		250		725	
3B	3		160	1300	2	2	1	3		185	710		
3C	3,4		682	5530	26	26	4	26	1	3370	3030		
4A	4		228	1850	12	12	1	12		600	445		
4B	4		284	2300	2	2	2	2		1730	855	585	
4C	4,5		870	7050	28	28	5	28		4675	520	250	
4D	5,6		321	2600	2	2	2	2		1015	290		
5A	6		213	1725	2	2	1	2		1060	1450		
5B	6		210	1700	2	2	1	2		120	1700		
5C	6,7		299	2425	2	2	2	2		700	1660		1
5D	7		136	1100	2	2	1	2					
6A	7		395	3200	4	4	2	4		75			1
6B	7		133	1075			1			760			
6C	8		216	1750	8	8	1	8		880			
6D	8		185	1500	4	4	1	4		1235			
7A	8,9		515	4175	2	2	3	2	1	6615			2
7B	9	4	503	4075	4	4	3	4		5670			2
7C	9,10	1	398	3225	2	4	2	2	1	2430			2
TOTAL		8	7139	57880	116	121	41	119	3	37180	12970	1910	11

Construction Actions Associated with the Proposed Alternative

To allow for safe public use of the Interim Use Trail, the following construction and maintenance activities would occur:

- Gravel – Gravel (5/8" minus/approximately 4" depth) would be placed along the entire length of the trail prior to the trail's opening for interim use. Approximately 7,000 cubic yards of gravel would be placed during construction.
- Bollards – One removable bollard per side would be located at all trail/roadway crossings. The bollards would be located on the railbed between the existing concrete blocks where present. Where concrete blocks are not currently present, they would be installed two per side at each crossing with one removable bollard per side.
- Fencing – Six-foot, galvanized, direct-drive posts with concrete footings every third post and six-foot chain-link fencing would be located where safety and liability, proximity and trespass, and privacy issues necessitate. Fences would be located a minimum of three feet and a maximum of six feet from the proposed interim trail edge. Adjacent property owners may choose to upgrade fencing at their own expense as long as access, safety, and liability requirements are met. Should the permanent trail alignment match the Interim Use Trail alignment in a given location, an appropriate permanent edge delineation would be recommended in the Master Plan.
- Guardrail – Wood posts with metal rail guardrail would be located adjacent to roads accessing adjacent properties where trail delineation is required.
- Signs – Trail use etiquette, traffic advisory, and property delineation signs would be located adjacent to the trail and at road and driveway crossings. Signs would be placed at a minimum of three feet and a maximum of six feet from the proposed interim trail edge. Signposts would be 4x4-inch pressure-treated fir, anchored in concrete at a depth of 36-40 inches.
- Bridge Upgrades –The bridges located over Laughing Jacob's, North Fork Issaquah Creek, and stationing point 488 would be fitted with 36-48-inch metal railings for safety.
- Vegetation Management/Removal – Vegetation located adjacent to the trail that limits sight distance would be trimmed or removed if necessary. The need for vegetation management would be necessary at many crossings prior to interim use and at all crossings as an ongoing maintenance activity and safety concern.

The proposed implementation schedule for the East Lake Sammamish Interim Use Trail is as follows:

- | | |
|--|-------------------|
| • Transmit Executive Proposed Interim Use and Resource Protection Recommendations to King County Council for review and adoption | August 25, 2000 |
| • Complete permit applications | November 15, 2000 |

- Begin implementation of permitted improvements June 15, 2001

The intent of the East Lake Sammamish Interim Use Trail Plan is to provide a usable trail while the final Master Plan is being developed and improvements recommended in the Master Plan are being implemented. The Phase II Environmental Impact Statement will address impacts associated with a Trail Master Plan.

Resource Protection and Maintenance/Operation Measures

The East Lake Sammamish Trail Interim Use and Resource Protection Plan (Draft, King County, 1999) was designed to “promote human safety, protect the environment, deter trespass onto adjacent property, inform trail users regarding trail regulations, and create an aesthetically pleasing interim trail.” The plan calls for frequent, scheduled trail inspections to look for drainage problems, surface conditions, dump sites, illegal activity, and access issues at the crossings and trail heads. Specific resource protection and maintenance/operation measures that would be implemented as part of the Proposed Action include:

- Split-Rail Fencing – Four-foot split-rail cedar fences would be located adjacent to environmentally sensitive areas such as wetlands, streams, and steep slopes. The fences would be located a minimum of three feet and a maximum of six feet from the trail’s edge.
- Drainage Maintenance – Ditches and culverts would continue to be maintained as needed, to allow for effective drainage. Nominal work would be done to repair damage, restore drainage paths and water flow, and undertake proactive measures in identified areas where there is a clear and present potential for acute drainage incidents.
- Litter and Dog-waste Control – Litter and dog-waste bag receptacles would be located along the trail at public access points.
- Signage – Signage indicating sensitive areas and need to avoid these areas would be installed.
- Railroad Tie Removal – Remaining railroad ties will be removed.

Public Access Points

Ten public access points are proposed along the 10.8 mile length of the trail. These access points are shown on Figures 2-1, 2-2, 2-3, 2-4, 2-5, 2-6, 2-7, 2-8, 2-9, and 2-10.

Alternative 1 Bypass

The alternative trail includes all the above construction and maintenance/operation actions for much of the route but would also require several additional actions to allow for the construction of the bypass route. The purpose of the bypass alternative is to avoid impacts to bisected properties and/or uses along the railbed. This alternative is not completely consistent with the

County's objective to establish public use of the railbed because it does not follow the railbed for its entirety. The proposed bypass route would transition from the railbed at approximately Stationing Point 369 to the western shoulder of East Lake Sammamish Parkway SE. The Interim Use Trail would continue south along the western shoulder of the Parkway until East Lake Sammamish Place SE, where it would continue along the western edge of East Lake Sammamish Place SE until it once again connects to East Lake Sammamish Parkway SE. The Interim Use Trail would then be located on the western edge of East Lake Sammamish Parkway SE until SE 33rd Street, where the bypass would reconnect with the railbed (Stationing Point 282.5). The bypass route is approximately 1.6 miles long and is located entirely within the City of Sammamish.

Use of East Lake Sammamish Parkway SE and East Lake Sammamish Place SE is subject to the jurisdiction of the City of Sammamish. The City of Sammamish has the authority to allow modifications to streets and roads within its jurisdiction. If approved, these modifications may require mitigation. The City of Sammamish has expressed support for the trail (Resolution No. R99-05) and has expressed a willingness to cooperate in determining reasonable modifications to the affected streets and roads, the proposed bypass is a feasible and realistic Interim Use Trail alternative (Wilson, personal communication, 2000).

Construction Actions Associated with Alternative 1

- Bypass Ramp – Construct a ramp that allows for a grade transition from the railbed to East Lake Sammamish Parkway SE. There is currently an approximately 15 foot grade separation between the railbed and East Lake Sammamish Parkway SE. Constructing the ramp would require a retaining wall, a new culvert over an existing ditch, and vegetation removal. The proposed grade of the access ramps would be designed to meet maximum slope requirements under the American with Disabilities Act (ADA).
- Signs – Trail use etiquette, traffic advisory, and property delineation signs will be located adjacent to the trail and at road and driveway crossings. Signs will be placed a minimum of three feet and a maximum of six feet from the trail's edge. Signposts will be 4x4-inch pressure treated fir, anchored in concrete at a depth of 36-40 inches.
- Trail Delineation – A painted lane edge will be placed along East Lake Sammamish Place SE to delineate the trail edge. The bypass lane will be approximately eight feet wide. Table 2-2 summarizes the project elements of Alternative 1.

Resource Protection and Maintenance/Operations Measures

The resource protection measures for Alternative 1 will be the same as those described for the Proposed Action.

Public Access Points

The public access points would be the same as those shown for the Proposed Action, except for additional access points along the bypass route. These are shown on Figures 2-1, 2-2, 2-3, 2-4, 2-5, 2-6, 2-7, 2-8, 2-9, 2-10, 2-11, and 2-12.

Table 2.2 East Lake Sammamish Trail - Interim Use and Resource Protection Plan - Alternative 1 Bypass

Interim Trail Segment	Figure No.	Blockades	Gravel (CY)	Trail Length (LF)	Bollards	Trail Signs Safety	Trail Signs Etiquette	Roadway Signs	Bridge Upgrades	Split rail Fence (LF)	Chain link Fence (LF)	Guardrail (LF)	Access Points*	Ties in-place (lf)
<u>1</u>	1	3	364	2950	2	5	2	4		680			3	
<u>2A</u>	1,2		358	2900	2	2	2	2		3480				
<u>2B</u>	2		500	4050	6	6	3	6		1650	2310	350		
<u>3A</u>	2		173	1400	2	2	1	2		250		725		45
<u>3B</u>	3		160	1300	2	2	1	3		185	710			90
<u>3C</u>	3,4		682	5530	26	26	4	26	1	3370	3030			1135
<u>4A</u>	4		228	1850	12	12	1	12		600	445			
<u>4B</u>	4		284	2300	2	2	2	2		1730	855	585		1693
<u>4C</u>	4,5		870	7050	28	28	5	28		4675	520	250		730
<u>4D</u>	5,6	1	204	1650	2	2	1	2		1015	290			950
<u>5A</u>	6					2		3						650
<u>5B</u>	6					2		3						
<u>5C</u>	6,7					2		4						
<u>5D</u>	7					2		3						
<u>6A</u>	7	1	302	2450	2	0	1	4		75				
<u>6B</u>	7		133	1075			1			760				
<u>6C</u>	8		216	1750	8	8	1	8		880				
<u>6D</u>	8		185	1500	4	4	1	4		1235				
<u>7A</u>	8,9		515	4175	2	2	3	2	1	6615			2	
<u>7B</u>	9	4	503	4075	4	4	3	4		5670			2	
<u>7C</u>	9,10	1	398	3225	2	4	2	2	1	2430			2	
TOTAL		10	6072	49230	106	117	41	124	3	35300	8160	1910	9	5293

* Access is also available along East Lake Sammamish Parkway and East Lake Sammamish Place SE.

By-pass Routes Considered But Not Selected

In addition to the bypass route discussed in this document, two other alternatives were initially considered but ultimately not selected for further environmental review.

Bypass Route from Stationing Point 369 to 337

This bypass route evaluated the feasibility of transitioning from the railbed to East Lake Sammamish Parkway SE approximately 500 feet north of East Lake Sammamish Place SE at stationing point 369 (Stationing Points are identified on Figure 2-1, 2-2, 2-3, 2-4, 2-5, 2-6, 2-7, 2-8, 2-9, 2-10, 2-11 and 2-12). The bypass route would be located on the west side of East Lake Sammamish Parkway SE until connecting and continuing on the west side of East Lake Sammamish Place SE. This bypass route would then use a private driveway providing access to the residence at 2005 East Lake Sammamish Place SE and reconnect to the railbed north of stationing point 337. This bypass route alternative was eliminated from further detailed consideration because:

- A portion of the driveway providing access to 2005 East Lake Sammamish Place SE is located on private property.
- The driveway has steep topography and would not meet accessibility requirements or minimum bicycle design standards.
- This route avoided only a portion of the bisected properties/land uses.

Bypass Route from Stationing Point 369 to 320

This bypass route evaluated the feasibility of transitioning from the railbed to East Lake Sammamish Parkway SE approximately 500 feet north of East Lake Sammamish Place SE at stationing point 369. The bypass route would be located on the west side of East Lake Sammamish Parkway SE until connecting and continuing on the west side of East Lake Sammamish Place SE. This bypass route would continue along East Lake Sammamish Place SE and reconnect with East Lake Sammamish Parkway SE continuing along the west side of East Lake Sammamish Parkway SE for approximately 300 feet until SE 26th Street. The bypass route would then follow SE 26th Street to the west and reconnect with the railbed at stationing point 320. This bypass route alternative was eliminated from further consideration because:

- SE 26th Street has steep topography and would not meet accessibility requirements or minimum bicycle design standards.
- This route avoided only a portion of the bisected properties/land uses.

Alternative 2 No Action

The No Action Alternative does not provide for any Interim Use Trail construction. However, some resource protection maintenance and operations functions would continue to occur. These

functions would include:

- Drainage Maintenance – Ditches and culverts would be maintained as necessary, to allow for effective drainage.
- Vegetation Removal – Vegetation would be removed or trimmed along the railbed in order to keep the corridor clear. Low levels of edging, mowing and weed removal would be conducted to maintain lines of sight and discourage trash dumping.
- Litter Removal – Litter would be picked up and removed as necessary.

Under this plan, periodic trail inspections to look for and address drainage problems, surface conditions, dump sites, illegal activity, and/or access issues at roadway crossings would be conducted in response to specific public requests, and when weather conditions could result in acute drainage issues.

Public Access

There would be no public access under this alternative.

Railbanking Requirements

King County and the Land Conservancy were required to comply with 49CFR1152.29 regarding the abandonment and discontinuance of rail lines and rail transportation, and the prospective use of rights-of-way for interim trail use and railbanking. King County has fully complied with 49CFR1152.29 (a)(2), as well as all other regulations pertaining to railbanking and the development of interim trail use.

Summary of Scoping Process/Public Input

Input from the public and key stakeholders from agencies, organizations and tribes, was carefully considered in determining the development of a Proposed *East Lake Sammamish Trail Interim Use and Resource Protection Plan* (King County, 1999). During development of the *Interim Use Trail Plan*, King County solicited comments from the public through workshops and meetings, individual meetings with property owners, meetings with potential user groups, an e-mail response link on a project Internet web site and voice-mail via a project telephone hotline. Input was sought from potential trail users and property owners adjacent to the trail; individual meetings with stakeholders will continue through the Master Plan process. Two workshops and one open house were held to gather public input on trail planning issues and draft mitigation concepts. Over 600 people attended the various meetings and public workshops with approximately 575 public comments received (King County, 1999). The public record of these comments is included in Appendix E of the *Interim Use Plan*. A Citizens Advisory Group (CAG) was also convened to provide recommendations on the proposed trail. The 13 members, selected by the King County Parks System advised the County on the Interim process and will continue their advisory role throughout the Master Plan process. The CAG comments are also included in Appendix E of the *Interim Use Plan*, (King County, 1999).

In accordance with the State Environmental Policy Act (SEPA), a scoping period for the Draft EIS was conducted from November 4 to November 29, 1999. During this period, King County collected written comments and heard public testimony on the scope of the Draft EIS. On November 17, 1999, the County held a public scoping meeting at Inglewood Junior High School in Sammamish, Washington, which was attended by dozens of people. Individual comment forms were available, a court reporter recorded verbal comments, and written comments were recorded on flip charts throughout the room. The County received hundreds of written comments during the scoping period. A meeting was held with the Snoqualmie Tribe, and County staff described the proposed project to the Cultural Council of the Muckleshoot Tribe. The Tulalip Tribe was sent information on the proposed project. The County also held workshops with permitting agencies and jurisdictions to identify their concerns.

Table 2.3 summarizes the major concerns and comments received during scoping. Many comments were also received prior to the SEPA Scoping Process, during the early phases of the *Interim Use Plan* associated with permit applications submitted by the County. These comments are incorporated into the Scoping Summary.

In total, the County has received hundreds of comments, ranging from support of the *Interim Use Plan* to staunch opposition. The project has been controversial throughout its history.

The Scoping Comments summarized in Table 2.3 have been used to focus the EIS evaluations. The complete scoping comments are available for review at King County. Careful efforts have been made, where appropriate, to understand and incorporate public concerns about the project into the Interim Use Trail EIS.

Table 2.3 Summary Scoping Comments

Issue	Comments	Total Number of Comments Received	EIS Section to Address Comment
Trail User Safety	Safety concerns exist at vehicle-trail crossings and blind driveways	17	3.7, 3.8
	Additional patrolling of trail needed (budget, personnel, etc.)	13	3.8
	Safety for small children crossing trail corridor; limited sight distance	13	3.7, 3.8
	Concern for bicycle and pedestrian accidents; adequate sight distance is a problem	9	3.7, 3.8
	Hours of operation are an important consideration; limit to daylight hours	8	3.8
	Need emergency vehicle access; emergency access must be maintained	7	3.8
	Limit/enforce bicycle speed on trail; license bicyclists	5	3.8
	65th NE, 56th St SE and NW Gilman intersections are unsafe for trail users	4	3.7, 3.8
	Do not pave	4	3.1, 3.8
	No smoking on trail; it could cause fire	1	3.8
	Less crime risk with a regional trail than without	2	3.8
	Accident history needed: 1) East Lake Sammamish Parkway; 2) vehicle/pedestrian and vehicle/bicycle accidents; 3) accidents at vehicle crossing points on Burke-Gilman	1	3.7, 3.8
	Specifically define public access to interim trail	1	3.8
	Effectiveness of regulatory signs should be discussed	5	3.8
	East Lake Sammamish Parkway (Parkway) is unsafe for pedestrians and bicyclists	2	3.7, 3.8
	Moving trail to the Parkway will increase visibility of trail users and provide better safety	1	3.8
	Potential pedestrian/boat launch conflicts at Waverly Hills boat launch and park at SE 33rd Street	1	3.8
	Potential for accidents between family pets and bicyclists	1	3.8

Issue	Comments	Total Number of Comments Received	EIS Section to Address Comment
Recreation	Need to have regional recreation and transportation resources in the area	4	3.11
	Use as multi-use trail	2	3.11
	Gravel is not a good surface for recreation	4	3.11
	Gravel is a good surface for recreation	2	3.11
	Do not use as multi-use trail	1	3.11
	Interim use is a long-term use and must be analyzed as such	1	3.11
	Effect of not building the trail needs to be examined	1	3.11
	Connect trail so that it utilizes the new trail that Issaquah built underneath Southeast 56th Street	2	3.11
	Connect trail to Laughing Jacobs Creek trail which is currently closed to interim use	1	3.11
	Include evaluation of lost recreational benefits if East Lake Sammamish Trail is delayed	1	3.11
	Include evaluation of how delay of East Lake Sammamish Trail will affect the use of other regional trails	2	3.11
	Allow horses		3.11
	No horses should be allowed		3.11
Noise	Noise at night is a current problem and will increase with trail opening	6	3.5
	Noise should be mitigated	6	3.5
	Noise will not be an issue; normal conversation will be loudest noise	3	3.5
Aesthetics	Homeowners' views would be impacted	3	3.10

Issue	Comments	Total Number of Comments Received	EIS Section to Address Comment
Public Facilities and Services	Parking: where will trail users park; how will residents' parking be impacted	15	3.7, 3.8
	Need trashcans for litter control	10	3.8
	Need to address restroom facilities	9	3.8
	Need to control animal waste and disposal	7	3.8
	Develop a trail user fee	5	3.8
	Access to trail and public waterfront access should be defined in plan	5	3.8
	Who will maintain trail and pay for it?	3	3.8
	Issue of lighting the trail: lighting will be needed in winter for bicycle commuters: how will it be handled?	3	3.8
Runoff/Water	Surface runoff/stormwater needs to be addressed; compaction of railbed will exacerbate existing and future problems	26	3.2
	Cumulative impacts of surface water from off-site development should be addressed	1	3.2
	Protect groundwater; shallow groundwater is used for drinking water	8	3.2
	Protect water quality of lake: toxic algae blooms and other long-term water quality problems must be addressed	4	3.2
	Drainage: how will trail increase/decrease drainage problems	5	3.2
	Runoff will not be an issue	1	3.2
	NPDES general permit required for interim use	1	3.2
	Reference/discuss consistency with East Lake Sammamish Basin and Non-Point Water Quality Plan in EIS development	1	3.2
	Identify locations of culvert replacement to determine potential impacts to streams/fish	1	3.2, 3.4
	Discussion of floodplain is needed	1	3.2

Issue	Comments	Total Number of Comments Received	EIS Section to Address Comment
Erosion	Issue of erosion/sedimentation is significant	4	3.1
	Trees at Weber Point area provide screening and bank stabilization	1	3.1
	Erosion and landslides will be a problem	1	3.1
Wildlife	Impact of trail construction/operation on wildlife and habitat must be described	24	3.4
	Improvements needed to re-establish habitat connectivity	2	3.4
Fish	Impact of trail construction/operation on salmon/fish and habitat must be discussed in detail	19	3.4
	Effects of trail on salmon recovery plans should be addressed	1	3.4
	Evaluate impacts on threatened, endangered or candidate species in affected streams	7	3.4
	Evaluate each stream and wetland: fish passage, salmon and trout rearing habitat, resident trout habitat, riparian zone health, stream channel geomorphology, groundwater, surface water, hydrology and surface water thermal regime	2	3.4
	Improve culverts along the trail to improve fish passage; bridge construction is preferable	2	3.4
Wetlands	Wetlands will be affected; middle portion of corridor is particularly sensitive to impacts	1	3.3
	Wetlands will not be significantly impacted	1	3.3
	Evaluate effect of runoff to wetlands	1	3.3
	Describe impacts to wetlands that occurred during tie removal and gravel deposition	1	3.3
	Railroad ties have been removed in areas designated to be left in place	1	3.3
	Evaluate blocked hydrology and biological functioning of wetlands at each potentially affected wetland	1	3.3

Issue	Comments	Total Number of Comments Received	EIS Section to Address Comment
Other Natural Resource Issues	The impact of construction on the environment must be described in detail	8	3.1, 3.2, 3.3, 3.4
	No widening of railbed should be allowed because it will disturb ecosystem	4	3.1
	Trail environment is too sensitive for horses and dogs; prohibit them from trail	5	3.1, 3.11
	Impact of creosote residue/hazardous waste must be assessed	5	3.1
	Gravel is okay for environment	2	3.1
	Gravel from trail will spill into ditches	1	3.1
	Biological Assessment is recommended by the Corps for culvert replacement	1	3.2
	Construction impacts will be minimal	1	3.1, 3.2, 3.3, 3.4
	Between 821 and 1111 East Lake Sammamish Parkway NE, move trail 25' to the east to avoid sensitive areas	1	3.1
Property Owner Safety and Security	Issues of trespassing; illegal use of docks, and other private property will occur	15	3.8
	Increased liability for homeowners (increase in insurance)	11	3.8
	Vandalism/crime will increase; 7-11 is a focal point for crime	6	3.8
	Mitigate loss of privacy with hedges or fencing; homeowners want to be contacted	7	3.6, 3.8, 3.10
	Increase in crime not likely to happen	3	3.8
	Provide homeowners with safe access to private waterfront/docks	4	3.8
	Public use of private driveways and access roads to get to trails could be unsafe	1	3.8

Issue	Comments	Total Number of Comments Received	EIS Section to Address Comment
Alternatives	Reroute to East Lake Sammamish Parkway, use existing paved shoulders	30	Chapter 3
	Keep trail on railbed	30	Chapter 3
	Alter by-pass route so that trail does not bisect any property	11	Chapter 3
	Resource protection measures only should be included as an alternative	1	Chapter 3
	Interim trail objectives and resource protection objectives should be separately defined; current description is too vague	1	Chapter 3
	Evaluate interim use alternatives in context of permanent trail alignments	1	Chapter 3
	Acknowledge that permanent trail construction will eliminate portions of interim use trail	1	All of chapter 3 sections
	Analyze cost of constructing and removing interim trail	1	2
	By-pass route access causes significant impacts to property owners, slope instability and runoff	1	3.1, 3.2, 3.6
	Trail plan developed by East Lake Sammamish Trail Association should be considered	1	2
	By-pass along East Lake Sammamish Place will have difficult elevation gain	1	3.1
	By-pass route has no legal foundation	1	2
	By-pass route is dangerous	1	3.7, 3.8
	Benefiting property owners should pay for bypass	1	2
	EIS should include potential connections to regional trail network	1	3.11
	East Lake Sammamish Place should be one-way for by-pass route	1	3.7
	By-pass alternative needs to be clarified	1	2
	No Action Alternative needs to be clarified	1	2
	Damage from construction will be great in areas close to trail; by-pass route will alleviate	1	3.1

Issue	Comments	Total Number of Comments Received	EIS Section to Address Comment
Land Use	Evaluate historical/existing uses and conditions of the rail right-of-way	1	3.6
	Condemnation is required prior to use by County	1	3.6
	Identify where trail is within 200 feet of shoreline	1	3.6
	Property value will be altered; property owners should be compensated	5	3.6
	Property was illegally acquired	1	3.6
	Identify number of bisected properties	1	3.6
	Evaluate impacts on semi-private and private spaces	2	3.6
Property Rights	Trail is not on public land (King County doesn't own land)	21	2
	No encroachment on landowners property beyond right-of-way	1	3.6
Interim/Master Plan	Complete Master Plan first before Interim Use Trail EIS	18	2
CAG	Conflict of interest with CAG or consultant	2	2
	CAG has no credibility	1	2
Response to Public Comments	What does King County do with public comments?	2	2
Budget	How will King County pay for all of this? How is budget being spent?	15	2
	Evaluate and plan for costs of litigating quiet title actions	9	2

Issue	Comments	Total Number of Comments Received	EIS Section to Address Comment
SEPA Process	Two EIS process is fragmented approach; proposed approach is not allowed under phased review	17	2
	Evaluate impacts of moving interim trail to permanent site as part of interim use EIS	8	2
	Segmenting evaluation of interim trail process will limit consideration of meaningful alternatives during master plan	1	2
	EIS should identify and cite relevant land use, recreational and environmental policies	1	3.6, 3.11
	Incorporate alternatives workshops for master plan into Interim Use Trail EIS	1	2
	Describe development that has already occurred, e.g. gravel and tie removal	1	2
	Evaluate cost of litigating	1	2
	City of Sammamish or other agency should be lead agency, not King County	2	1
	Define objectives for Interim Use Plan	1	1
	Define benefits of delaying implementation of proposal	1	2
	Costs vs. benefits analysis should be done	1	2
	SEPA requires evaluating off-site alternative	1	2
	Interim use of railbed represents de facto permanent alignment for trail	1	2
Cottingham Study	King County should follow the Cottingham study	5	2
Other	Re-think crossing fee policy	4	2
	Interim trail will not meet ADA requirements	2	2
	Loss of railroad: could be used for light rail	1	2
	Effect on jurisdictions: how much will it increase public services and who will pay?	1	3.8
	Between 821 and 1111 East Lake Sammamish Parkway NE, move trail 25' to east to allow parking for homeowners and reduce the number of driveway/trail crossings	1	3.1

CHAPTER 3 - NATURAL AND BUILT ENVIRONMENT

3.1 EARTH AND GROUNDWATER

AFFECTED ENVIRONMENT

This section describes the existing geologic conditions (topography, soils, groundwater, and associated hazards) that may affect or be affected by the proposed East Lake Sammamish Interim Use Trail improvements. The Geology Technical Back-up (Geology Appendix) includes maps of surficial geology and geologic hazards and a table summarizing the existing slope and geologic conditions for each trail segment.

Topography and Geology

The proposed project corridor is located in the central portion of the Puget Sound Basin, an elongated, north-south trending depression situated between the Olympic Mountains and Cascade Range in Western Washington. The existing topography, surficial geology, and hydrogeology in the project area are heavily influenced by past glacial activity. The topography is dominated by a series of north-south trending ridges and large troughs formed by glacial activity. The major troughs are now occupied by Puget Sound, Lake Washington, Lake Sammamish, and other large water bodies. Geology in the region includes a thick sequence of overconsolidated glacial and unconsolidated non-glacial soils overlying bedrock.

The project corridor traverses variable geologic conditions along the eastern slope of the Lake Sammamish trough (trail Segments 2 through 6). This slope has a topographic relief of approximately 400 feet from the Sammamish Plateau on the east side to Lake Sammamish on the west. The northern and southern ends of the corridor traverse unconsolidated alluvium along flat-lying plains. The elevation of the corridor lies between approximately 10 to 30 feet above Lake Sammamish.

The Uniform Building Code (ICBO, 1997) defines the Puget Sound region as Seismic Zone 3, which represents an area susceptible to moderately high seismic activity. Since the 1850's, over 25 earthquakes of magnitude 5.0 or greater have occurred in the Puget Sound region. In addition to the recorded earthquakes, evidence suggests that a major earthquake occurred about 1,100 years ago on the Seattle Fault. Evidence also suggests that large subduction zone earthquakes (magnitude 8 to 9) occur along the Washington coast. The geologic record suggests five or six subduction zone events may have occurred over the last 3,500 years; the most recent was about 300 years ago.

Geologic Hazards

Geologically hazardous areas are defined as areas that are susceptible to damage from erosion, sliding, earthquake, or other geologic events. Washington's Growth Management Act (GMA) (Chapter 36.70A RCW) requires all cities and counties to identify critical areas within their

jurisdictions and to formulate development regulations for their protection. The cities of Redmond and Issaquah, as well as King County, have each developed Geologically Hazardous Areas Ordinances and accompanying maps or folios. (The newly incorporated City of Sammamish refers to the King County Sensitive Areas maps at present.) In general, these ordinances require that detailed geotechnical studies be prepared to address specific standards relating to site geology and soils, seismic hazards, and facility design.

Figures B-B13 through B-B22 in the Geology Technical Back-up (Geology Appendix) show the approximate locations of the identified geologic hazard areas relative to the project corridor. The most notable hazard areas include landslide and erosion hazards along trail Segments 2 through 6, and potential seismic liquefaction areas in Segments 1 and 7. The significance of the hazard areas relative to the project alternatives is discussed in the Impacts section below.

Soils and Sediments

Surface and subsurface soils in the plains at the north and south ends of Lake Sammamish (Segments 1 and 7) consist of alluvium and lake deposits. Soils along hillsides (Segments 2 through 6) typically consist of overconsolidated glacial deposits, overlain by variable thicknesses of colluvium (slope deposits) and locally by alluvium.

Erosion potential along the project corridor varies with surficial geology and soil type, topography, occurrence of groundwater seepage and surface runoff, and the built environment. The greatest erosion potential appears to be along the existing cut slopes of the railbed.

Groundwater

Variations in geology and topography along the alignment result in variable groundwater conditions. Groundwater in the alluvial plains at the north and south ends of Lake Sammamish occurs at shallow levels within alluvial deposits and is interconnected with the lake. Groundwater levels in the alluvium and water levels in the lake rise and fall according to season. Along the hill slopes above the alignment, groundwater seeps may discharge from perched groundwater layers to surface water bodies flowing into Lake Sammamish. No seepage, however, was observed along the existing railroad cuts during site reconnaissance in January 2000. Shallow, perched groundwater occurs above relatively impermeable glacial deposits that contain significant portions of silt or clay, such as till, transitional beds, and Olympia beds (See Geology Appendix for unit descriptions). Glacial outwash units consisting of higher percentages of coarse-grained materials tend to form aquifers which occur both above and below the impermeable glacial deposits. Local water well logs obtained from Washington Department of Ecology reveal that most wells in the vicinity of the project alignment obtain groundwater from depths greater than 100 feet, and penetrate confined aquifers below impermeable deposits. These aquifers are separated from surface runoff by one or more aquitards (impervious units). Significant interconnection between surface water at the lake shore and groundwater would not be expected to extend below the upper 20 feet of soil. Since the trail corridor is near the lake shore and only 10 to 30 feet higher than the lake, it is in an area of groundwater discharge from the hill slope (and Sammamish Plateau) toward the lake.

Hazardous Materials

Leaks or Spills of Hazardous Materials During Railroad Operation

The rail line that formerly occupied the proposed Interim Use Trail corridor was a branch line that provided limited service to the rural area east of the City of Redmond. This branch of the railroad did not serve a highly industrial area; the main industry was a dairy in Issaquah. Therefore, transport of carloads of hazardous materials on this rail line was probably minimal.

The potential did exist for leaks or spills of diesel fuel from locomotive fuel tanks during a derailment. According to the Burlington-Northern Santa Fe (BNSF) Railroad, records regarding hazardous materials leaks or spills from operations on this branch of the railroad exist for the past 10 years. These records do not indicate leaks or spills of hazardous materials associated with operation of this branch of the railroad (Sheppard, personal communication, 2000).

Another potential source of hazardous materials during railroad operation was incidental drips of oils and lubricants from railroad locomotives and cars. This type of incidental leakage occurs on all railroads and is generally proportional to the amount of railroad traffic, similar to the deposition of oils and lubricants on highways. Such leakage is restricted to the railbed and is manifested as discoloration of railroad ties and gravel ballast. The residual petroleum hydrocarbons from this incidental leakage would be subjected to weathering and transport processes, including biodegradation in the ballast and underlying soil, contact with rainwater, and flow to streams and groundwater. Considering the limited volume of the leakage and the propensity for these types of hydrocarbons to break down in the environment, major impacts to streams and groundwater would not be expected.

Application of Chemicals to Control Weeds

Weed control is conducted along railroad corridor to keep tracks and ballast clear of vegetation and to prevent trackside fires. According to the BNSF Railroad, records regarding application of weed-control chemicals on this branch of the railroad exist for the past 10 years. These records indicate that all weed control was conducted by State-licensed herbicide applicators (Sheppard, personal communication, 2000). Licensed applicators are required to have a thorough knowledge of the chemical properties and recommended application rates of the herbicides they apply. Therefore, there is a minimal potential for over-application or misuse of these herbicides which could result in contamination of soil and groundwater.

Wood-Preserving Chemicals in Wood Railroad Ties

Wood railroad ties are chemically treated to prevent insect attack and to maximize tie life. Creosote, a derivative of coal tar, is the oldest and most common chemical preservative used on railroad ties. Pentachlorophenol was introduced in the early 1960s as an effective wood-preserving chemical for use on railroad ties and other wood materials.

Although wood-preservative chemicals in railroad ties present the potential for leaching into surrounding soils, the potential is low due to the low solubility and mobility of these chemicals in water. A study by the Association of American Railroads examined the leaching

characteristics of various types of wood railroad ties from throughout the United States, ranging in ages from new to 50 years. The results of Toxicity Characteristic Leaching Potential (TCLP) testing indicated creosote concentrations less than 5% of the Federal regulatory threshold that would classify the ties as hazardous waste (Association of American Railroads, 1994). Similar research by the Electric Power Research Institute (1992) on wood poles and crossarms treated with pentachlorophenol showed mean concentrations of 1/50th of the hazardous waste threshold. Soil testing by the Forest Products Laboratory of Mississippi State University failed to show any traces of creosote more than 5 cm from wood poles that had been treated with creosote prior to being driven into the earth (United Kingdom Creosote Council, 2000).

Most of the railroad ties were removed from the railbed during the rail salvage project. In eight segments of the railbed (total of approximately 2,500 linear feet), ties were left in place due to wet conditions and the presence of adjacent sensitive environments (Parametrix, 1999a). Splinters from railroad ties generated during railroad tie removal activities may be present within the project corridor.

Incidental Leaks of Oils, Lubricants, and Fuels from Construction Equipment During the Rail Salvage Project

Pollution prevention measures were in place as of March 30, 1999 as part of the rail salvage project conducted within the corridor and on the railbed (King County Park System, 1999). These measures included application of Best Management Practices (BMPs) for prevention, identification, reporting, and cleanup of any fluid leaks and spills from vehicle equipment use and storage. No incidents of leaks or spills of oils, lubricants, or fuels occurred during the period that the pollution prevention measures were in effect (Parametrix, 1999b).

IMPACTS

The impacts evaluated include geologic hazard impacts upon the project corridor, as well as trail construction, operation, and maintenance impacts of each alternative. The greatest potential impact of the project on the earth environment would be erosion due to historic, ongoing and future ditch and culvert maintenance. In addition, potential impacts associated with contact of hazardous materials has been evaluated.

Proposed Action

Construction-related Impacts

Erosion and sedimentation impacts could occur due to cleaning ditches and culverts of slough and sediment that has accumulated since BNSF Railroad's last maintenance. Erosion and sedimentation likely occurred during the rail salvage operation, residents along the railbed have commented that erosion occurred during these operations. Such impacts would be greatest along Segments 2 through 6, where steep slopes are present. Lesser erosion and sedimentation would

occur along drainage ditches in Segments 1 and 7, where the project corridor is in flat-lying areas. These impacts are not anticipated to be significant; historic impacts do not appear to be significant.

Minor erosion and sedimentation could occur during removal of remaining railroad ties, placement and grading of crushed rock trail surfacing, fence construction, bollard and signpost installation, and removal of hazard trees. These impacts can be minimized by use of erosion control measures such as mulching or hydro seeding.

Construction of the trail would not alter the potential for or impacts of debris flows. Construction of the Interim Use Trail would not cut into any slopes, and therefore would not reduce the stability of existing slopes.

The entire corridor may be subjected to earthquake shaking and is considered to have a moderate to high seismic risk. A strong-motion earthquake could cause lateral spreading along slopes of Segments 2 through 6. Soil liquefaction along the alluvial plains at the north and south ends of Lake Sammamish (Segments 1, north end of 2, and 7) could result in a loss of strength, settlement, and lateral displacement of soils supporting the railbed.

There is potential for landsliding of the existing steep slopes within the project corridor and landslide-prone terrain mapped uphill from the corridor. Landslides can be triggered by a seismic event, by the natural stabilization process whereby a steep slope evolves to a flatter profile, by an increase in pore-water pressure due to excessive rainfall that could destabilize the slope, or by construction activities which traverse or cut into steep slopes. Evidence of landsliding was observed in only a few areas (refer to Geology Appendix for further discussion). Landslides that may occur upslope from the project corridor would have the potential to trigger debris flows down stream channels, potentially plugging culverts and overtopping the railbed.

Incidental leaks of oils, lubricants, and fuels from construction equipment could occur during construction of the Proposed Action. If not prevented, contained, or cleaned up, these leaks could result in contamination of soil and surface water. The volume of such leaks from any given piece of equipment would be minimal (less than a gallon), unless a major fuel or hydraulic system piping failure occurred. Impacts to groundwater are unlikely, due to the short duration of construction in a given segment.

Long-term Impacts

Any soil left exposed to rainfall and surface runoff after initial construction and subsequent maintenance could erode and cause increased siltation and sedimentation of surface waters. Measures to prevent soil exposure to rainfall (such as modeling and hydroseeding) will be taken. Impacts from trail use are anticipated to be negligible. Groundwater discharge to the lake would not be affected since no modifications to surface drainage will be made. No impacts upon groundwater quantity or quality are expected.

Use of hazardous materials during operation and maintenance of the Interim Use Trail is not anticipated. Vegetation control will be conducted with weed trimmers and mechanical mowers. Wood railroad ties left in place, or splinters from removed railroad ties, do not present long-term

hazardous material concerns due to the very low leachability of the wood preservatives contained in the ties.

Cumulative Impacts

Temporary cumulative impacts could occur where other projects in the project vicinity would be built at the same time, or close in time, to trail construction. With mitigation, the cumulative impacts would be avoided.

No cumulative impacts are expected for the Proposed Action with respect to hazardous materials.

Alternative 1 Bypass

Construction-related Impacts

Impacts associated with the Bypass Alternative are the same as for the Proposed Action, except for the elimination of impacts where the existing railbed will be bypassed (Station 370.5 to Station 282.5) and the addition of construction-related impacts for a Bypass transition ramp. Ditches and culverts will be maintained along the bypassed section of railbed. Therefore, the only impacts eliminated along the Bypass would be those from crushed rock placement, signpost/bollard placement, and fence construction. Additional impacts may result from signpost placement along the roadways. Construction of the transition ramp from the railbed to East Lake Sammamish Parkway would involve construction of a retaining wall, fill placement, and removal and replacement of guardrails. Soils exposed from guardrail post removal and cutting and filling along the existing roadway embankment would be susceptible to erosion.

Potential hazardous materials impacts related to construction of the Bypass Alternative would be similar to the Proposed Action. Construction of an access ramp to the bypass will require additional material and equipment, however, the work will be short-term and associated risks only slightly higher than for the Proposed Action.

Long-term Impacts

Long-term impacts would be largely the same as for the Proposed Action, because the section of railbed eliminated from the trail would still be maintained for surface drainage. The Bypass route avoids the highest existing slopes along the corridor, thus reducing long-term potential for erosion.

Cumulative Impacts

Potential cumulative impacts for the Bypass Alternative would be the same as described for the Proposed Action.

Alternative 2 No Action

Construction-related Impacts

Remaining railroad ties would be removed and ditches and culverts would be maintained under this alternative. Therefore, impacts would be the same as for the Proposed Action, except for impacts associated with placement and grading of crushed rock surfacing and installation of signs and bollards. Since these activities would not be performed under this alternative, no impacts would occur.

Long-term and Cumulative Impacts

Potential long-term and cumulative impacts associated with the No Action Alternative are not anticipated.

MITIGATION MEASURES

Proposed Action

The measures described below would avoid and/or reduce potential earth-related impacts on the proposed project.

Seismic Hazards. Damage due to soil liquefaction can be reduced or eliminated by a number of methods. The ground could be improved beneath the trail by densification or replacement of potentially liquefiable soils. However, settlements due to liquefaction are expected to be minimal due to past loading of the railbed from heavy freight traffic. Any liquefaction settlements would likely occur in the native soils beneath railbed ballast and fill. The appropriate level of mitigation may be to repair and regrade the railbed as necessary following a seismic event.

Landsliding/Steep Slopes. The existing steep slopes and landslide hazard areas will not be cut into for this project (except as noted below for Alternative 1 Bypass), therefore little mitigation will be necessary. Based on the small number of known slides and the great extent of cut slopes along the project corridor, the most prudent mitigation may be to remove slide debris and stabilize slopes as necessary when slides occur. Maintaining culverts at stream crossings may help avoid debris flow damage to the trail and down-gradient properties. Mitigation of debris flow damage would consist of cleanup and repair following slide event.

Erosion. Soil that is not disturbed during construction or maintenance activities will not need mitigation. During construction, erosion control BMPs should be implemented to reduce the amount of silt-laden runoff from construction areas. Impacts from removing existing sediment from ditches and culverts can best be mitigated by scheduling these activities for the most appropriate times of year, e.g., periods of low rainfall and times when aquatic habitats are least impacted by siltation and sedimentation. Ditches and slopes where accumulated slough is removed to reduce ditch infilling should be mulched with straw or matting to reduce short-term

erosion. These areas should also be reseeded or planted with vegetation to reduce long-term erosion and sloughing, thus reducing the future frequency of ditch and culvert cleaning.

Siltation associated with placement and grading of crushed rock may be mitigated by skillful earthwork to reduce the amount of material spilled into ditches. Silt-laden soils excavated during signpost and bollard installation could be removed from the site or spread on fill slopes and covered with mulch. Erosion that may occur from the removal of remaining railroad ties and hazard trees (Plants and Wetlands Section 3.3) can be mitigated by the placement of straw mulch as needed.

Hazardous Materials. Spill control and cleanup procedures for hazardous materials used during project construction will be addressed in the Stormwater Pollution Prevention Plan (SWPPP) for the construction project. The SWPPP is required as a condition of the construction NPDES permit for the project. The SWPPP will be developed by the selected construction contractor and will include BMPs for prevention, identification, reporting, and cleanup of any fluid leaks and spills from vehicle equipment use and storage. When these infrequent events occur, the contractor typically calls a vendor immediately to clean up the spilled material and repair the machine so that it can continue working. Compliance with the SWPPP will be monitored by King County or their designated representative.

Alternative 1 Bypass

Mitigation of impacts would be the same as for the Proposed Action, although reduced slightly in scope by the elimination of crushed rock placement, fence construction, and signpost/bollard installation along the existing railbed between Stations 370.5 and 282.5. Additional mitigation would be necessary for construction of the transition ramp (Station 370.5) and signpost installation along the roadways. Erosion of soils exposed by ramp construction and signpost installation could be mitigated with appropriate BMPs during and after construction. It may be necessary to place silt fencing above the existing drainage ditch down slope from the proposed ramp to prevent infilling by disturbed soils.

Alternative 2 No Action

Earth and groundwater-related impacts are not anticipated, therefore, mitigation measures have not been developed.

SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

Corridor improvements, maintenance, and use would have no significant long-term earth or groundwater-related impacts.

3.2 SURFACE WATER

AFFECTED ENVIRONMENT

The East Lake Sammamish Interim Use Trail lies within four major watersheds: Bear Creek, Sammamish River, East Lake Sammamish, and Issaquah Creek, which are part of Water Resource Inventory Area (WRIA) 8: Cedar-Sammamish Basin. Most of the proposed trail would lie within the East Lake Sammamish Basin (Figure 3.2-1). Numerous perennial and intermittent creeks, seeps, and wetlands lie within the project area. Several lakes are located within the project area, and most of the trail would be located within 200 feet of the eastern shore of Lake Sammamish. The hydrology, water quality, and floodplains associated with the major surface water features within the project area are discussed below. Wetlands and fisheries are discussed in Sections 3.3 and 3.4. Hazardous materials, such as creosote, located along the existing railbed are discussed in Section 3.1, Earth and Groundwater.

Bear Creek Basin

Bear Creek Basin, located north of Lake Sammamish, covers approximately 51 square miles and drains into the Sammamish River in Redmond. The upper portions of the watershed are relatively undeveloped. The Interim Use Trail would be located in the Lower Bear Creek sub-basin where land use is predominately urban residential and commercial (King County, 1990).

The corridor lies within the Bear Creek Basin, however it does not cross the creek or the designated Federal Emergency Management Agency (FEMA) floodplain.

King County has designated the lower reaches of Bear Creek as a Regionally Significant Resource Area because of its excellent habitat and water quality; it is also one of the most productive salmon spawning streams in the Puget Sound Basin. Although Bear Creek has excellent water quality, it has exceeded criteria for fecal coliform and mercury in the lower reaches, and the Washington State Department of Ecology (Ecology 1998) placed it on the 1998 303(d) list of threatened and impaired water bodies. The 100-year floodplain of Bear Creek is mapped in the vicinity of the project area (FEMA, 1998). No local drainage or flooding problems have been reported in this area.

Sammamish River Basin

The Sammamish River Basin drains a total of 150 square miles. However, all but 26 square miles of this area drains through Lake Sammamish or Bear Creek, (King County, 1993). The Sammamish River flows north, connecting Lake Sammamish with Lake Washington. The Sammamish River is approximately 13 miles long and relatively linear with a uniform channel configuration along much of its length. Land use adjacent to the river is a combination of urban, residential, and agricultural uses. A portion of Segment 2 of the Interim Use Trail would be located within an area draining to the Sammamish River. However, this area is located approximately one mile from the river, near its source (Lake Sammamish), and no concentrated flow from the trail reaches the river.

Ecology has listed the Sammamish River on the 1998 303(d) list for exceeding temperature, fecal coliform, and pH criteria. FEMA has designated an extensive 100-year floodplain for the Sammamish River north of the project area.

East Lake Sammamish Basin

The 16-square mile East Lake Sammamish Basin is composed of six major sub-basins (from north to south) Panhandle, Inglewood, Monohon, Thompson, Pine Lake, and Laughing Jacobs (Figure 3.2-2). These are drained by 14 Class AA perennial creeks, 8 intermittent creeks, and 35 additional drainage routes as designated by the Washington State Department of Ecology (See Geology Appendix and King County, 1999).

The streams, which generally originate in wetlands located on the Sammamish Plateau, drain west through steep ravines to Lake Sammamish. Numerous seeps also emerge along the base of the Plateau and supply additional surface water for streams and wetlands. Rapid and intense development has degraded the hydrology and water quality in Lake Sammamish and the numerous creeks that drain into the lake (King County, 1990).

The proposed project site is located along the toe slope of the Sammamish Plateau and typically runs perpendicular to natural drainage routes. Local flooding and drainage problems common within the project area have been attributed to: (1) historic alteration of natural drainage patterns by construction and operation of the railroad and East Lake Sammamish Parkway, (2) residential development, (3) natural seeps and springs, and (4) poorly maintained local drainage systems. Flooding complaints documented by the King County Water and Land Resources Division, Drainage Services Section, are summarized in the Surface Water Appendix. The main sub-basins and surface water features in the East Lake Sammamish Basin are discussed in detail in the following sections.

Lake Sammamish

Lake Sammamish, with a surface area of approximately 4,900 acres, is one of the largest lakes in the Puget Sound Basin (King County, 1999). The Lake receives flow primarily from Issaquah Creek and discharges north through the Sammamish River to Lake Washington, Lake Union, and Puget Sound. Most of the watershed is located within the King County Urban Growth Boundary (UGB) and is (or is proposed to be) developed with high-density residential and commercial land uses (King County, 1994). Section 3.6, Land and Shoreline Use, describes projected land use for this watershed. Within the project area residential development has been concentrated between the East Lake Sammamish Parkway and the lake shore.

Lake Sammamish is listed as a King County Sensitive Lake because water quality studies conducted over the last 30 years have suggested that the lake is sensitive to phosphorus loading (King County, 1990, 1995). In 1968, Metro completed a water quality improvement project that ended direct discharges of sewer effluent to Lake Sammamish (King County, 1999). To further protect the lake, King County has adopted strict water quality and stormwater standards that regulate basin development to protect the lake from excessive phosphorus loads and to reduce problems with low dissolved oxygen (DO) (King County, 1998). Ecology included Lake Sammamish on the 1998 303(d) list of threatened and impaired water bodies because fecal coliform criteria were exceeded.

FEMA has mapped a 100-year floodplain, designated Zone X, along the eastern edge of the lake. All of the existing railbed is located outside the floodplain. However, portions of the corridor are located within the floodplain (FEMA, 1995).

Panhandle Sub-basin

The Panhandle sub-basin, located in the northern portion of the East Lake Sammamish Basin, is approximately three miles long and relatively narrow. The sub-basin is drained by seven perennial streams, six intermittent streams (Table 3.2-1), and numerous seeps, which are characteristically short, high-gradient channels (King County, 1994). Residential development is concentrated along the shores of Lake Sammamish and in portions of the upper watershed (King County, 1994). High-density residential development is predicted to increase in the upper portions of the watershed (See Section 3.6, Land and Shoreline Use).

King County field surveys noted no significant water quality problems in any of the Panhandle Sub-basin drainages. However, all of these drainages have problems with incision in steep stream reaches and sedimentation in the lower reaches (King County, 1994).

FEMA floodplains are not mapped for any of the streams in this sub-basin. However, numerous drainage and local flooding problems within the project area have been reported due to seeps and poor conveyance systems. Generally, development along the trail in this sub-basin is sparse. Nevertheless, local drainage and flooding problems have been reported in this area due to blocked pipes and ditches and altered flow regimes (King County, 1994). Capital improvement projects to replace culverts under the railbed have been identified for several streams, as noted in Figure 3.2-3

**Table 3.2-1. Streams in the Panhandle Sub-basin,
East Lake Sammamish Basin.**

Stream ID	Trail Station	Classification ¹	Channel Description ²
0143A	597.6	Perennial Class 2, unknown salmonid use	Upstream substrate consists of cobble and riprap. The creek is piped to Lake Sammamish downstream of the railbed.
0143B	551.5	Intermittent	Upstream substrate consists of sand and silt, and the channel lies in a ditch. Downstream the creek is piped to Lake Sammamish.
0143C		Intermittent	Flows into Stream 0143B upstream of the railbed.
0143D	537.6	Intermittent	(Not located)
0143E	532.5	Intermittent	Upstream substrate consists of sand and silt, and the channel is straight. Downstream the creek is on private property (not investigated).
0143F	527.0	Perennial Class 2, no salmonids	Substrate consists of silt and organic debris, and the channel is straight. Downcutting due to erosion at the downstream end of culvert has occurred.
0143G	524.2	Perennial Class 2, no salmonids	Substrate consists of a combination of gravel, and sand/silt. Sandbags have been used downstream to dam the creek to divert flow to a fish incubator.

Stream ID	Trail Station	Classification ¹	Channel Description ²
0143M	509.0	Perennial Class 2, no salmonids	Substrate consists of a combination of gravel, and sand/silt. Upstream slope to East Lake Sammamish Parkway is steep. Approximately 15 feet of downcutting has occurred, and it appears that the bank has poor stability. Less erosion has occurred downstream and channel meanders are present.
0143H	502.2	Perennial Class 2, no salmonids	Substrate consists of cobble and gravel. Some downcutting due to erosion has occurred at the downstream end of a culvert.
0143I	488.5	Intermittent	Upstream substrate consists mostly of sand/silt with some gravel. Upstream slope to East Lake Sammamish Parkway is steep. Downstream the creek is piped to Lake Sammamish.
0143J	484.4	Intermittent	Substrate consists mostly of sand/silt with some gravel. The creek is in a ditch upstream of the crossing. Downstream, the creek appears to have poor bank stability.
0143K	472.0	Perennial Class 2, no salmonids	Substrate consists of silt/sand. Channel is straight. No flow in creek during site visit (despite being classified as perennial).
0143L	462.6	Perennial Class 2, no salmonids	Substrate consists of a combination of sand/silt and gravel. Upstream there is a 10-ft drop from East Lake Sammamish Parkway, and siltation problems, and the creek flows through a wetland. Downstream the channel is straight.

Notes: ¹ Classification and salmonid use based on King County Investigations (1994).

² Channel descriptions based on Parametrix, Inc. field investigations conducted in Fall 1999.

Inglewood Sub-basin

The Inglewood sub-basin covers approximately 1,559 acres and drains through George Davis Creek (known locally as Inglewood or Eden Creek). George Davis Creek originates on the Sammamish Plateau in a network of wetlands and springs. Land use in this sub-basin is changing from forested to residential uses (King County 1994a, 1996) (See Section 3.6 Land and Shoreline Use).

George Davis Creek is a Class 2 stream that supports salmonids. Water quality monitoring in this creek indicates problems with *Enterococcus* bacteria and nitrogen possibly due to septic tanks (in a neighborhood serviced by septic systems west of 228th that is frequently flooded) or sewer system leaks. Sediment deposition, which is common within the project area, may also degrade water quality and habitat (King County, 1994).

FEMA has not mapped a floodplain associated with this creek. Two concrete pipes (36-inch and 24-inch diameters) currently convey the creek under the existing railbed. Although these pipes have capacity to convey existing flows, King County has recommended a capital improvement project (CIP), which would replace them with a single 72-inch diameter pipe (See Figure 3.2-3) (King County, 1994). The creek enters another pipe downstream of the railbed and flows under a house before reaching the lake. George Davis Creek was reported to flood adjacent properties during storm events in 1991, 1994, and 1996 (King County, 1999). Local flooding along the railroad track is also common (King County, 1994).

Monohon Sub-basin

The Monohon sub-basin is divided into the north, middle, and south drainages along the eastern edge of Lake Sammamish. The main features of each Monohon sub-basin drainage are summarized in Table 3.2-2. Much of this basin drains directly to Lake Sammamish without forming a distinct channel. Land use within the basin is currently a combination of forest and dense residential. Future development is expected to be predominately dense residential (King County, 1994).

Table 3.2-2. Streams in the Monohon Sub-basin, East Lake Sammamish Basin.

Stream ID	Sub-basin	Classification ¹	Channel Description ²
Zaccuse Creek	North Monohon	Perennial Class 2, salmonids	Substrate consists of cobble and sand/gravel. Upstream the channel is vegetated with blackberry bushes and is part of Wetland 26. Downstream the channel contains riffles and flows into a pipe under a house.
0155	Middle Monohon	Intermittent	Could not be located.
0162A	South Monohon	Intermittent	Substrate consists of sand/silt. Upstream the channel is in a wet ditch, which is steep and eroded between East Lake Sammamish Parkway and the railroad. Downstream the channel disappears into private lawn.
0163	South Monohon	Perennial Class 2, salmonids	Substrate upstream consists of silt/sand and it appears to have poor bank stability. Downstream substrate consists of gravel/cobble. Channel discharges to the lake.
Many Springs Creek	South Monohon	Perennial Class 2, salmonids	Substrate consists of silt/sand. Upstream the channel is located in a wet ditch. Downstream the channel flows through Wetland 3.

Notes: ¹ Classification based on King County Investigations (1994)

² Channel descriptions based on Parametrix, Inc. field investigations conducted in Fall 1999.

The northern drainage area in the Monohon sub-basin is located between the Inglewood and Thompson sub-basins. Zaccuse Creek is the primary drainage feature in this basin. Zaccuse Creek originates in a series of wetlands and flows northwest to Lake Sammamish. It is a Class 2 stream with salmonids. Channel incision has been reported in the middle reaches of Zaccuse Creek and sedimentation has occurred in the downstream reaches, which degrades water quality. No other water quality problems have been reported in the sub-basin (King County 1994). FEMA has not mapped a floodplain along this creek. Zaccuse Creek is conveyed under the existing railbed in a 36-inch concrete pipe; no flooding problems have been reported although flooding is expected under existing land use conditions assuming a 25-year or greater return frequency storm event discharge rate (King County, 1994).

The middle drainage area, located between the Pine Lake and Thompson sub-basins, is drained by Stream No. 0155 (See Figure 3.2-2), a Class 2 intermittent stream. Salmonid habitat is limited to the mouth of the stream. The stream is conveyed under the railbed in a 12-inch corrugated metal pipe (CMP). No evidence of flooding problems was observed during a winter 1999 field investigation.

The southern drainage area contains three notable streams: Many Springs Creek and Stream No. 0163, which are both Class 2 streams with salmonids, and Stream No. 0162A, which is an intermittent stream. Many Springs Creek has experienced both channel incision and downstream sedimentation. Although Ecology has not included it on the 303(d) list, water quality has been impaired by fine sediment deposition. Many Springs Creek is conveyed under the existing railbed through a 24-inch CMP. Modeled flow data predict flooding under existing development conditions during a 25-year or greater return frequency storm event (King County, 1994). Stream Nos. 0163 and 0162A have no reported water quality problems (King County, 1994). Stream No. 0163 is conveyed under the existing railbed in a 24-inch clay pipe; no evidence of flooding or capacity problems was observed during a field investigation (Parametrix, 1999). Stream No. 0162A is conveyed in a 24-inch concrete pipe, which has been reported to be undersized (King County, 1999).

Thompson Sub-basin

The Thompson sub-basin covers approximately 1,176 acres in the middle of the East Lake Sammamish Basin. Current land use in this sub-basin is a combination of rural and urban residential uses and undeveloped land. However, land use is projected to become predominately urban residential, except for a small area located in the stream ravine that will remain rural (King County, 1994). Ebright Creek, a Class 2 salmon-bearing creek (See Figure 3.2-2), is the most notable drainage feature in this sub-basin. It is fed by two tributaries that originate on the Sammamish Plateau in Wetlands 14, 17, 61, and 62. In the project area, large woody debris and boulders have been placed in the channel to reduce erosion and enhance instream habitat. King County (1994) has documented erosion problems in the upper watershed and sedimentation problems in the lower watershed. Water quality monitoring also indicates that fecal coliform, total phosphorus, and turbidity concentrations have been high during storm events.

FEMA has not mapped a floodplain in the project area. However, a hydraulic study indicates that the existing railbed lies outside the flood elevation during a 100-year flood event (King County, 1999). A 36-inch concrete pipe and a 36-inch CMP convey the creek under the existing railbed. Although these culverts have enough capacity to convey the 100-year flood event, a King County CIP has been identified to replace these culverts with a bridge to improve fish passage (See Figure 3.2-3; King County, 1994).

Pine Lake Sub-basin

The Pine Lake sub-basin covers approximately 773 acres in the middle of the East Lake Sammamish Basin. Pine Lake Creek originates on the Sammamish Plateau in Pine Lake and Wetland 24 (See Figure 3.2-2). The creek then drains west to Lake Sammamish through a steep ravine composed of glacial till soils underlain with highly erodible sandy outwash soils. The main tributary, Kanim Creek, joins Pine Lake Creek upstream of the project area. Downstream of the existing railbed, boulders and large woody debris have been added to the stream to enhance habitat. Current land use in this basin is a combination of forested, and rural and urban residential use; however, future land use will be primarily urban residential (King County, 1994). Pine Lake Creek is a Class 2 perennial salmon-bearing creek. Ecology listed the creek on the 1996 and 1998 303(d) lists for fecal coliform and recommends establishment of a total maximum daily load (TMDL) for the sub-basin. Although FEMA has not mapped a 100-year floodplain,

hydraulic studies indicate that the existing railbed is outside the local floodplain (King County, 1999). Two 36-inch concrete pipes convey Pine Lake Creek under the existing railbed. Although these pipes can convey the 100-year storm event, a King County CIP recommends that they be replaced with a bridge (See Figure 3.2-3; King County, 1994).

Laughing Jacobs Sub-basin

The Laughing Jacobs sub-basin includes approximately 3,600 acres of the southern portion of the East Lake Sammamish Basin. The basin is drained by Laughing Jacobs Creek, which begins in Wetland 26 (also known as Laughing Jacobs Lake), flows through a steep ravine, and discharges to Lake Sammamish near the state park. Although land use in 1989 was approximately 63 percent forested with scattered residential development, the sub-basin has been rapidly developed and is expected to reach approximately 89 percent urban development (See Section 3) (King County, 1994). King County has rated this creek as a Class 2 stream that supports salmonid populations. Ecology listed the creek on the 303(d) list in 1996 and 1998 for exceeding fecal coliform criteria. The creek has high phosphorus content from agricultural land uses and sediment loads which originate from active landslides in the lower reaches of the creek (the upper portions are underlain by bedrock) (King County, 1990).

FEMA has not designated a 100-year floodplain associated with Laughing Jacobs Creek. However, hydraulic modeling of the creek has been used to map a local floodplain within the project area (King County, 1999). Results from this study indicate that the existing railbed is located above the flood stages predicted for a 100-year storm event. The existing railbed crosses the creek on a bridge, which has enough capacity to convey the 100-year flood event.

Issaquah Creek Basin

The Issaquah Creek Basin covers approximately 61 square miles in the southern portion of the Lake Sammamish Basin. The North Fork sub-basin, containing the proposed trail covers approximately 2,855 acres. Flow in this sub-basin originates on the Sammamish Plateau at Yellow Lake, and enters the main fork of Issaquah Creek just upstream of Lake Sammamish. The North Fork of Issaquah Creek is low gradient in the upper and lower reaches but flows through a steep ravine near the middle of the watershed. The sub-basin is nearly 75 percent forested (King County, 1994) with portions of the basin developed with high-density residential uses. Development within the basin is projected to increase. Water quality in the North Fork has been impacted by runoff from impervious surfaces located in the city of Issaquah and from discharges from a storm sewer outfall at River Mile (RM) 0.2 (King County, 1994).

Flooding is concentrated in the lower reaches of the sub-basin where FEMA has mapped a 100-year floodplain (FEMA, 1995). The existing railbed is elevated above the 100-year flood elevation on fill.

Existing Regulatory Environment

Federal, state, and local regulations govern stormwater quantity, water quality, and floodplains in each of the affected watersheds. The federal government regulates floodplains and water quality through permits issued by the state. At a minimum, state and local agencies must meet federal

requirements. However, within the project area, state and local government agencies have adopted stricter standards. Ecology has established water quality standards for the state and has recommended that total daily maximum loads (TMDLs) be established for Bear Creek, Issaquah Creek, Pine Lake Creek, and Lake Sammamish.

FEMA has mapped 100-year floodplains on Flood Insurance Rate Maps (FIRM), which regulate development within these watersheds. The Clean Water Act is the federal law that regulates direct discharge of pollutants to water resources through the use of permits.

King County, the primary local government agency within the project area, has developed the Sensitive Areas Ordinance (SAO) and *Surface Water Design Manual* (King County, 1998) to address water quality treatment within the project site. Lake Sammamish has been designated as a Sensitive Lake; therefore, specific treatment standards may apply to the project. The *King County Surface Water Design Manual* has been adopted by the cities of Issaquah, Sammamish, and Redmond and would apply to the entire project site. King County and the cities have adopted basin plans—for Lake Sammamish, Issaquah Creek and Bear Creek—that outline basin-specific requirements designed to protect sensitive portions of these watersheds.

IMPACTS

Impacts to the hydrology, water quality, floodplains and local drainage may occur during construction and operation phases of the project. Construction, long-term, and cumulative impacts are discussed below followed by a discussion of recommended mitigation measures.

Open ditches along the existing railroad were impacted during salvage operations. In approximately four locations heavy equipment was driven off the railroad grade and into the ditches, which pushed sediment into the ditch blocking surface flow and increasing erosion. In one location, materials were stockpiled adjacent to the railbed, blocking a ditch, which increased erosion and sedimentation. In several areas heavy equipment was driven on saturated soils causing compaction and changing surface water drainage patterns and storage. Gravel was placed in many locations along the railbed for erosion control.

Proposed Action

Construction-related Impacts

Specific locations for trail construction staging areas have not been identified at this time; however, impacts associated with general construction practice would be similar along the entire trail length. Impacts associated with construction of the Interim Use Trail and resource protection are addressed separately. All construction activities would be temporary.

Gravel placement along the entire trail corridor for erosion control and creation of a level trail surface would be the main construction activity associated with the Interim Use Trail. Gravel placement could result in an increase in fine sediment, which could temporarily impact water quality. Gravel placement could also increase erosion along ditches, wetlands, or streams adjacent to the existing railbed, if heavy machinery used to haul and spread the gravel were to

drive on the shoulder. Heavy equipment required for construction activities could potentially impact water quality by increasing the potential for spills (such as oil or gasoline). Given the relatively short duration of construction in any one location, construction impacts are not expected to be significant.

Resource protection includes construction of fences near streams and wetlands. Due to vegetation removal and earthwork, sedimentation and erosion would be potential impacts associated with construction (See Section 3.1, Earth and Groundwater). Excavation for fence posts will be short-term and localized. Fence posts will generally be placed in flat locations, and the nature of proposed construction techniques, further reducing the potential for erosion and sedimentation.

Ditch and culvert maintenance, which may occur during the construction or operational phases of the trail, would require localized vegetation removal as needed to access the site and manual cleaning of ditches and culverts using shovels and specialized tools, potentially resulting in short-term water quality impacts. The proposed action would likely affect local drainage patterns and local flooding problems by restoring the historic level of function in these ditches and pipes. Only existing ditches and culverts will be maintained; impacts are expected to be minor and isolated. Table 3.2-3 summarizes construction activities potentially impacting water resources for each alternative.

Table 3.2-3. Construction Activities Potentially Impacting Water Resources

Action	Trail Segment						
	1	2	3	4	5	6	7
Proposed Action							
gravel placement (cubic yards)	2,950	6,950	8,230	13,800	6,950	7,525	11,475
fence chain link and split rail construction	680	7,790	8,270	10,965	6,690	2,950	14,715
Alternative 1							
gravel placement (cubic yards)	2,950	6,950	8,230	12,850	0	5,275	11,475
fence chain link and split rail construction	680	7,790	8,270	10,965	0	2,950	14,715
Alternative 2	None	None	None	None	None	None	None

Long-term Impacts

Long-term use of the Interim Use Trail is not likely to affect the hydrology of any of the creeks or Lake Sammamish or affect identified floodplains. Impervious area and topography will not be altered from current conditions. However, long-term paved trail use could have water quality impacts and could potentially affect local drainage. These impacts will be discussed as part of the Master Plan EIS.

Hydrologic impacts to streams in the project area are not expected because the imperviousness of the trail would not change under interim use and no additional impervious surfaces would be created to provide parking or access. No additional runoff is expected from the site during interim use.

The Interim Use Trail would not be subjected to vehicular use except for periodic maintenance. Therefore, it would not be a source of heavy metals or hydrocarbons. Because it would not be fertilized, the trail would also not be a source of nutrients such as phosphorus, which is a pollutant of concern in the Lake Sammamish Basin. Based on these facts and definitions of pollutant-generating surfaces (King County Manual)¹, it is assumed that the Interim Use Trail would be considered non-pollutant-generating. Increased use by bicycles and dogs (which could be considered potential sources of pollutants) would not result in measurable water quality impacts. Potential increases in the amount of dog feces could be an additional source of fecal coliform and nutrients to the basin. However, the trail is not designated specifically as a dog use area.

Increased bicycle and pedestrian use of the railroad corridor could increase erosion of the trail shoulder near ditches, wetlands, and streams if these areas are not stabilized prior to use. Erosion could result in sediment being conveyed to streams, which could temporarily degrade water quality. This could occur during storm events when fine sediment could flush from the trail. In addition, unauthorized access points to the trail could trigger local erosion and increase the amount of sediment being conveyed to streams.

Increased vehicular traffic due to trail users along East Lake Sammamish Parkway and other roads near the trail could increase pollutants, such as hydrocarbons and heavy metals, found in local road runoff (See Section 3.7, Transportation). Road runoff would be treated as part of the roadways' drainage systems. Therefore, no additional water quality mitigation is proposed.

Approximately 4 inches of gravel would be added to the railbed, which would increase the trail elevation slightly. The gravel would maintain the existing level of imperviousness on the railbed. Ongoing maintenance would include removing sediments from culverts. These practices may slightly alter local drainage patterns in some areas, however, the impact would not be significant. Because the trail would not increase the rate or volume of runoff, the magnitude of local drainage and flooding problems which are caused by runoff from existing private roadways and buildings as well as seeps and poor local drainage would not be increased.

Operation of resource protection measures would not result in any long term impacts to streams, and may minimize other impacts to the streams adjacent to the Interim Use Trail.

Ditch and culvert maintenance currently underway and anticipated to continue during interim use would serve to restore drainage patterns that existed during railroad operations. This may change local drainage routes in areas where ditches and culverts have not been maintained since

¹ Pollution-Generating Impervious Surfaces include "those (surfaces) which are subject to vehicular use or storage of erodible or leachable materials, wastes, or chemicals, and which receive direct rainfall or the run-on or flow in of rainfall." Pollution-Generating Pervious Surfaces include (but are not limited to) "lawn and landscaped areas of residential or commercial sites, golf courses, parks and sports fields."

1996 when railroad maintenance ended. Long term drainage problems will be addressed as part of the Master Plan.

Approximately 6,800 linear feet of the existing trail right-of-way are located within the East Lake Sammamish 100-year FEMA floodplain and 620 linear feet within the North Fork Issaquah Creek 100-year FEMA floodplain. Implementation of the Proposed Action will not change floodplain considerations from the current condition.

Cumulative Impacts

Increased development on the Sammamish Plateau would continue to alter the hydrologic regime of streams that drain through the proposed project corridor. Increases in peak flows and erosion rates could have significant downstream impacts on local drainage and result in flooding problems if culverts cannot convey the increased flows or if sediment is allowed to block culverts or fill ditches. Because the existing railbed and the proposed Interim Use Trail are situated perpendicular to natural flow patterns, any modifications to the trail could impact local drainage. Increased development could also introduce additional pollutants, which could degrade water quality in the streams and Lake Sammamish. Interim use of the trail would not contribute significant levels of additional pollutants or runoff to these streams; hence, it is unlikely that the proposed interim use would have cumulative impacts on these resources. In

general, the proposal would support and/or contribute to the overall level of increased urbanization in the area, which has been shown to have negative effects on water quality.

Several other development projects (Microsoft building, Costco expansion, Fred Meyer, Home Depot, and other commercial buildings) will be constructed adjacent to the corridor and Lake Sammamish. These projects are expected to have hydrologic and water quality impacts if not properly mitigated. Because the Interim Use Trail is not expected to increase runoff or have measurable water quality impacts, no cumulative impacts to the downstream resources are expected from the Proposed Action or Alternative 1.

The Interim Use Trail or parts of it will be operational until implementation of a permanent paved trail is complete. These impacts will be fully addressed in the Master Plan EIS.

Alternative 1 Bypass

Construction-related Impacts

The Bypass Alternative would have the same impacts as the Proposed Action, except in the portion of the trail that would not be located along the existing railbed. The Bypass route would not require gravel placement in this section; hence, temporary impacts associated with construction activities would not occur. Because the Bypass route would cross Stream 0162 on the shoulder of East Lake Sammamish Parkway, construction impacts related to bank stabilization, fencing, and gravel placement would be avoided.

Construction of gravel access points to connect the existing railroad grade with East Lake Sammamish Parkway will require vegetation removal and addition of gravel, which will increase the potential for erosion in these areas. Overall impacts are not expected to be significant.

Long-term Impacts

The Bypass Alternative would have long-term impacts similar to the Proposed Action, except in areas where the trail would not be located along the existing railbed. In this area potential water quality impacts to Stream 0162, due to increased bicycle and pedestrian use and unauthorized access, would be avoided. Ditch and culvert maintenance practices would be the same as those mentioned under the Proposed Action.

Approximately 6,800 lineal feet of the existing trail right-of-way are located within the East Lake Sammamish 100-year FEMA floodplain and 620 lineal feet within the North Fork Issaquah Creek 100-year FEMA floodplain. Impacts will be the same as those discussed under the Proposed Action.

Cumulative Impacts

Cumulative impacts for the Bypass Alternative are similar to those discussed on the Proposed Action. The section of proposed trail not on the existing railbed would not impact any existing drainage patterns or floodplains.

Alternative 2 No Action

Construction-related Impacts

No Interim Use Trail construction would occur with the No Action Alternative; therefore, no construction impacts would be expected. Periodic maintenance of culverts and ditches along the length of the existing railroad corridor would be required under this alternative. This would result in water quality and drainage impacts similar to those discussed under the Proposed Action.

Long-term Impacts

Long-term impacts associated with trail use would be avoided by the No Action Alternative.

Cumulative Impacts

Impacts to water quality, local drainage, and flooding within the project area due to development in the upper watershed in the East Lake Sammamish basin will continue to occur. Impacts would be similar to those discussed in the Proposed Action section.

MITIGATION

The cities of Issaquah, Redmond, and Sammamish have adopted the King County Sensitive Areas Ordinance (SAO) to protect natural resources. These cities have also adopted the *King County Surface Water Design Manual* (1998), which sets requirements intended to protect surface water resources during construction and operational phases of projects. In addition, these cities and King County have adopted the Bear Creek, East Lake Sammamish, and Issaquah Creek basin plans to establish stricter protection standards and additional mitigation requirements for sensitive water resources within these basins. For the proposed project, all of these requirements will be met.

Regulatory Requirements

Implementing the Proposed Action could require several permits. Construction activities would require a National Pollutant Discharge Elimination System (NPDES) permit from the Washington State Department of Ecology. Any construction within the ordinary high water mark of a stream or wetland would require a Hydraulic Permit Approval (HPA) from the Washington State Department of Fish and Wildlife.

The SAO and the basin plans restrict development adjacent to streams and their buffers. The SAO requires:

- 100-foot buffers on all Class 1 streams and all Class 2 streams used by salmonids;
- 50-foot buffers on all other Class 2 streams; and
- 25-foot buffers on Class 3 streams (SAO 10870 Section 483 1998).

The Bear Creek Basin Plan has modified this requirement by establishing a 150-foot buffer on all Class 1 or 2 streams within the Bear Creek Basin that support salmonids. Trails are allowed to cross the stream and buffer if King County determines that there is no other feasible alternative location outside the sensitive area with fewer adverse impacts (SAO Ordinance 10870 Section 484 1998).

Construction activities adjacent to or within streams or wet ditches should also meet site-specific criteria, such as limiting construction to periods when salmonids are not present, diverting flows around construction areas, and using straw bales or level spreaders to disperse flows and reduce erosion. Additionally, the project must meet eight core requirements for surface water design (Table 3.2-4).

**Table 3.2-4. King County Surface Water Design
Manual Core Requirements.**

King County Core Requirements		Intent
#1	Discharge at Natural Location	To prevent surface and stormwater runoff from creating a significant adverse impact to downstream properties or drainage systems.
#2	Offsite Analysis	To identify and evaluate offsite drainage problems that could be created or aggravated by the proposed project.
#3	Flow Control	To protect downstream properties and natural resources from increases in peak, duration, and volume of runoff generated by the proposed project.
#4	Conveyance Systems	To ensure proper design and construction of conveyance systems.
#5	Erosion and Sediment Control	To prevent transport of sediment to streams, lakes, wetlands, and drainage systems.
#6	Maintenance and Operations	To ensure that responsibility for maintaining and operating drainage facilities is clearly defined.
#7	Financial Guarantees and Liability	To ensure financial guarantees are posted to sufficiently cover costs of correcting substandard drainage facilities.
#8	Water Quality	To ensure that efficient, cost-effective water quality treatment is provided to the targeted treatment level to meet the resource protection needs of specific areas.

Proposed Mitigation Actions for Historical Impacts

Impacts that occurred during salvage operations could be mitigated as part of the mitigation plan for construction and operation of the Interim Use Trail. Such measures would include stabilizing the trail shoulder to prevent erosion and maintaining ditches and culverts by removing sediment.

Proposed Mitigation Actions and Schedule

In addition to complying with the required mitigation, construction Best Management Practices (BMPs) outlined in the *King County Surface Water Design Manual* should be implemented at all construction sites (Table 3.2-5).

Additional mitigation could be provided to ensure that construction and use of this trail does not result in any long-term impacts to water resources in these basins. These additional mitigation methods include:

- Stabilizing the trail shoulder in areas adjacent to streams, wetlands, and ditches;
- Conducting maintenance investigations of the trail corridor after significant storm events and on a routine schedule to identify eroding ditches and unauthorized access points;
- Replanting native riparian vegetation along stream corridors to reduce bank erosion and enhance habitat;
- Installing and maintaining dog waste collection stations;

- Establishing protection easements along stream corridors; and
- Restoring function to the existing storm drainage system for the entire stream corridor.

Table 3.2-5 King County Recommended Temporary Erosion and Sediment Control BMPs.

Category	Applicable BMPs
Temporary Cover Practices	Temporary seeding; Straw mulch; Bonded fiber matrices; Plastic covering.
Permanent Cover Practices	Preserving natural vegetation; Buffer zones; Permanent seeding and planting.
Structural Erosion Control BMPs	Stabilized construction entrance; Tire wash; Construction road stabilization; Dust control; Interceptor dike and swale; Check dams.
Sediment Retention	Filter fence; Storm drain inlet protection; Sedimentation basins.

Source: King County (1998).

SIGNIFICANT UNAVOIDABLE IMPACTS

No significant adverse hydrologic, water quality, or flooding impacts were identified for any of the alternatives assessed.

3.3 PLANTS AND WETLANDS

AFFECTED ENVIRONMENT

Plants

Vegetation information is based primarily on a review of data provided by resource agencies, and site visits conducted throughout 1999 and the first three months of 2000. Vegetation communities (a.k.a., wildlife cover types) in the project area are shown on Figures 3-A, 3-B, 3-C, 3-D, 3-E, 3-F, 3-G, 3-H, 3-I, and 3-J (the GIS maps at the end of Chapter 3).

Existing vegetation was classified into the following communities: urban matrix, deciduous

forest, coniferous forest, and wetland vegetation (Table 3.3-1). The urban matrix is the predominant plant community in the corridor, and consists of a mosaic of small patches of native plants, ornamental trees, shrubs, and mowed turf; and areas of invasive and weedy species. Deciduous and coniferous forest, as well as some of the wetland plant communities, are comprised primarily of native species. Some alien weedy species are present in the communities. Reed canarygrass and/or Himalayan blackberry dominate some of the wetland plant communities. Typical species present in the community are given in Table 3.3-1.

Individual plants species (with common and scientific names) identified in the project corridor are given in the Plant Species Appendix. For further details on plant community composition (wildlife cover types) See the Wildlife Section and Wetland Appendix.

Wetlands

This section describes the wetlands that occur in the project corridor. Wetlands are defined as those areas that are inundated or saturated for long enough during the growing season to develop anaerobic conditions in the upper portion of the soil, which results in the development of wetland vegetation and hydric soils. Parametrix, Inc. staff identified wetlands in April of 1999, and delineated vegetated wetlands during November and December 1999, and January and February 2000. Wetland delineation methods were based on the *Wetland Delineation Manual* (Environmental Laboratory, 1987) and the *Washington State Wetlands Identification and Delineation Manual* (Ecology, 1997).

Wetlands were classified according to the U.S. Fish and Wildlife Service *Classification of Wetlands and Deep Water Habitats of the United States* (Cowardin et al., 1979). Boundaries of palustrine (vegetated) wetlands occurring in the project area were delineated within the corridor, or within 25 feet of the top edge of the railbed. Lacustrine wetlands occur along the Lake Sammamish shoreline adjacent to the corridor in several locations. Boundaries of lacustrine wetlands were not delineated and are assumed to occur at the shoreline waterwards until water depths are greater than 6.6 feet. Additional detailed information is located in the Wetland Appendix, *East Lake Sammamish Trail Wetlands Report* (Parametrix, 2000). Wetland functional assessments were made for vegetated wetlands based on the presence of indicators and professional judgment. These assessments focused on hydrological and biological functions typically performed by wetlands (Brinson, 1993; Reimold, 1994; Reppert, et al., 1979).

Table 3.3-1. Typical Plant Species Present in the Plant Communities in the Corridor

Vegetation Community	Frequency ¹	Typical Species	Common Name	Scientific Name
Landscaped	70%	Overstory	Ornamental trees	
		Understory	Mixed turf grasses Ornamental shrubs	
Coniferous Forest	5%	Overstory	Douglas-fir Western redcedar Red alder	<i>Pseudotsuga menziesii</i> <i>Thuja plicata</i> <i>Alnus rubra</i>
		Understory	Salal Swordfern Evergreen huckleberry Indian plum Vine maple	<i>Gaultheria shallon</i> <i>Polystichum munitum</i> <i>Vaccinium ovatum</i> <i>Oemleria cerasiformis</i> <i>Acer circinatum</i>
Deciduous Forest	5%	Overstory	Big leaf maple Red alder	<i>Acer macrophyllum</i> <i>Alnus rubra</i>
		Understory	Beaked hazelnut Swordfern Salal Common snowberry Himalayan blackberry Oregon grape	<i>Corylus cornuta</i> <i>Polystichum munitum</i> <i>Gaultheria shallon</i> <i>Symphoricarpos albus</i> <i>Rubus discolor</i> <i>Mahonia aquifolium</i>
Wetland	10%	Forested	Black cottonwood Oregon ash Pacific ninebark	<i>Populus balsamifera</i> <i>Fraxinus latifolia</i> <i>Physocarpus capitatus</i>
		Shrub	Pacific willow Sitka willow Himalayan blackberry	<i>Salix lucida</i> <i>Salix sitchensis</i> <i>Rubus discolor</i>
		Emergent	Reed canarygrass Himalayan blackberry Soft rush Cattail	<i>Phalaris arundinacea</i> <i>Rubus discolor</i> <i>Juncus effusus</i> <i>Typha latifolia</i>
Ballast	10%	Weedy grasses and forbs	Bentgrass Reed canarygrass Dandelion Nipplewort Shotweed Himalayan blackberry	<i>Agrostis</i> sp. <i>Phalaris arundinacea</i> <i>Taraxacum officinale</i> <i>Lapsana Cemmunis</i> <i>Cardamine oligospermum</i> <i>Rubus discolor</i>

¹ Approximate proportion of the area occupied within the corridor (percent).

Wetland Regulatory Environment

Laws regulating wetlands include the Federal Clean Water Act (Sections 404 and 401), under which the U.S. Army Corps of Engineers (ACOE) regulates wetlands as a subclass of Waters of the State. The Washington State Shorelines Management Act, along with local shoreline master programs in each jurisdiction, regulate the shoreline of Lake Sammamish and several streams in the vicinity with mean annual flow of over 20 cubic feet per second (cfs). The Sensitive Areas Regulations of King County and of the cities of Redmond, Sammamish, and Issaquah provide the local regulatory framework. Details of regulatory elements for each jurisdiction are

summarized in Table 3.3-2. The recently incorporated City of Sammamish had codified a Sensitive Areas Ordinance at the time of this Draft EIS. Through an Interlocal Agreement between the City of Sammamish and King County, the County provides critical areas review and permitting services to the City according to King County's regulations and review process.

Wetlands along the corridor were rated according to state and local regulations. Summaries of the rating definitions are provided in the Wetland Appendix. Buffer widths were assigned based on wetland ratings according to the local jurisdiction. In general, wetland buffers in the project vicinity are not vegetated; they are either paved streets or driveways, or are dominated by maintained vegetation such as mowed turf.

Lake Sammamish

Lake Sammamish is mapped by the National Wetlands Inventory ([NWI] FWS, 1989) as lacustrine wetland and deepwater habitat with both limnetic and littoral subsystems. Limnetic habitats are the portions of freshwater lakes where the water is greater than 6.6 feet. Littoral, or nearshore, habitats have water depths less than 6.6 feet. By definition, where littoral wetlands occur, they extend lakeward from the lakeshore to a depth of 6.6 feet and lack persistent emergent vegetation. The majority of the lake is mapped as limnetic with an unconsolidated (un-vegetated) bottom. The NWI maps the occurrence of littoral wetlands along the shore of Marymoor Park and Lake Sammamish State Park and along the southern lakeshore of Weber Point. The corridor lies directly adjacent to the mapped littoral habitat for an approximate 150-foot-long section south of Marymoor Park.

Wetlands of Marymoor County Park and Lake Sammamish State Park

The corridor crosses large wetlands in Marymoor County Park and Lake Sammamish State Park (See Wetland Appendix for further discussion). The two wetland areas are each rated by King County and Issaquah as Class 1 wetlands and require 100-foot buffers.

The Marymoor Park wetlands cover approximately 100 acres and are mapped by King County as *Sammamish River #4* (King County, 1991). The wetlands encompass the entire northern end of Lake Sammamish including the east and west sides of the head of the Sammamish River channel. Lacustrine wetlands occur waterward from the lakeshore. Palustrine forested, scrub-shrub, and emergent wetland communities comprise vegetated wetlands north and east of the lake.

Table 3.3-2. Wetland Regulations for Jurisdiction Crossed by the East Lake Sammamish Trail Right-Of-Way

	King County and City of Sammamish ^a	City of Issaquah	City of Redmond	Ecology	U.S. Army Corps of Engineers
Permitting and Regulatory Mechanism	King County Code 21A.24 Sensitive Areas Ordinance	Issaquah Municipal Code 18.10, Environmental Protection and Critical Areas Regulations	Redmond Community Development Guide 20D.140, Sensitive Areas.	Executive Order 89-10: Protection of Wetlands. Hydraulic Project Approval.	Clean Water Act, Section 404.
Wetland Classification System	Defines three wetland classes	Defines three wetland classes	Defines four wetland types	Four wetland categories (defined in Ecology, 1993)	Does not classify wetlands
Buffer Requirements	Class 1 = 100 ft ³ Class 2 = 50 ft ³ Class 3 = 25 ft ³	Class 1 = 100 ft Class 2 = 50 ft Class 3 = 25 ft	Type I = 100 to 150 Type II = 50 to 100 Type III = 25 to 50 Type IV = 0	General Recommendations Category I = 200 to 300 ft Category II = 100 to 200 ft Category III = 50 to 100 ft Category IV = 25 to 50 ft	Does not regulate buffers
Buffer Modification	Buffers can be averaged or modified subject to conditions and approvals.	Buffers can be averaged or modified subject to conditions and approvals.	Buffers can be averaged or modified subject to conditions and approvals.	Not addressed	Not applicable
Wetland Mitigation Ratios	Creation, Enhancement or Restoration ^b In the same sub-basin or on-site Class 1 and 2 = 2:1 Class 3 = 1:1	Creation, Enhancement or Restoration Class 1 and 2 = 2:1 Class 3 = 1:1	Creation Type I = 6:1, Type II and III = 2:1 Type IV = not required Enhancement Type I = 2:1 Type II and III = 1:1 Type IV = not required	General Recommendations Category III Forested = 3:1 Scrub-shrub = 2:1 Emergent = 2:1 Category IV = 1.25:1	Mitigation is determined on a case-by-case basis.

Note: ^a Through an interlocal agreement, the City of Sammamish follows King County regulations and procedure.

^b Proposed revisions to King County's Sensitive Areas Ordinance increase these ratios.

The corridor passes through the eastern portion of this wetland where mature palustrine forested wetland occurs. Black cottonwood (*Populus balsamifera*) and Oregon ash (*Fraxinus latifolia*) form the overstory and mixed shrubs with reed canarygrass (*Phalaris arundinacea*) grow in the understory. In this location, wetland hydrology results from seasonally high groundwater and from stormwater runoff, including a large stormwater outfall.

A second large wetland system is located in Lake Sammamish State Park along the southern shore of the lake. The wetland covers approximately 200 acres and was mapped by King County as *Issaquah Creek #2* (King County, 1991). The wetland is comprised of forested, scrub-shrub, and emergent palustrine wetlands with lacustrine wetlands occurring north and west of the lakeshore.

In the corridor, the wetland is dominated by reed canarygrass. Growing along the margins of the Parkway and the railbed are mixed patches of willow (*Salix* sp.), young Oregon ash, and black cottonwood trees.

Issaquah Creek, an important regional fish-bearing stream, is located approximately 3,000 feet west of the corridor and flows north through the wetland to the lake. Wetland hydrology results from seasonally high ground water, surface water runoff, and periodic flooding of Issaquah Creek. Three additional small streams flow either through or across the corridor and to the lake.

Both Marymoor Park and Lake Sammamish State Park wetlands are high functioning ecosystems providing biological support and wildlife habitat, including habitat for threatened and endangered species, and species of special concern (See Wildlife and Fish Section 3.4 for more detail on habitats in these areas). Hydrologic functions provided by these wetlands include water quality improvement through sedimentation and nutrient transformation, stormwater detention, and floodwater attenuation. These functions help maintain water quality and aquatic habitat in adjacent Lake Sammamish.

Wetlands Associated with Salmonid-Bearing Streams

There are eight streams in the project area that are known to have salmonid fish species (See Wildlife and Fish, Section 3.4), and seven of these streams are associated with wetlands in the corridor (See Wetland Appendix). The wetlands are rated by the local jurisdiction as Class 2 based on area and habitat features, and require 50-foot buffers.

These wetlands range in size from 0.2 acre to greater than 5.0 acres and generally extend outside of the corridor. Overall, emergent and scrub-shrub vegetation classes are more prevalent than forested, although a few have significant forested portions. The wetlands are important in providing wildlife habitat and protecting fish habitat in the adjacent streams. Some may provide off-channel refuges for migrating and rearing fish during winter and spring flood and high flow periods. Important habitat support functions provided by the wetlands include organic matter production, water temperature attenuation through shading, and water quality improvement through sediment trapping and nutrient cycling. Critical hydrologic functions include stormwater and flood storage, retention, or conveyance; and base flow support. Currently, many of the wetlands are functionally degraded by the dumping of yard waste, construction debris, and other trash. In some, significant vegetation disturbances (clearing or mowing) also reduce the function of these wetlands.

Wetlands Associated With Perennial Streams

Nine wetlands in the project area are associated with perennial streams that do not appear to provide salmonid fish habitat (See Wildlife and Fish Section 3.4). Most streams originate east of the Sammamish Parkway and flow through the corridor to the lake, while the wetlands generally occur entirely within the corridor. The wetlands are rated by the local jurisdiction as Class 2 or Class 3 depending upon size and number of vegetation classes present, and have 50- or 25-foot buffers, respectively. Two wetlands are less than 2,500 square feet each and are not rated.

These wetlands provide habitat for non-salmonid fish species (See Wildlife and Fish Section 3.4). They may also contain still pools and other aquatic habitat for breeding and rearing amphibians. These wetlands trap sediment, facilitate nutrient transformation, and reduce the amounts of nutrients contained in stormwater runoff and thus provide water quality benefits to the lake. Dumping of yard waste and other debris and some vegetation removal has impaired these wetland functions.

Wetlands Associated with Intermittent Drainages and Hillside Seeps

At many locations in the corridor, wetland hydrology results from groundwater discharge from slopes adjacent to the railbed (See Wetland Appendix). Generally, small streams originate in the seep wetlands and drain directly to the lake, or join with larger drainages in the corridor. The wetlands are usually entirely contained within the corridor. Generally, they are rated as Class 3 wetlands. Some have forested vegetation and are therefore rated as Class 2 wetlands.

The seep wetlands typically have emergent vegetation with reed canarygrass, the most predominant of the emergent species present. This and other vegetation serves to retain sediments, and to stabilize the erosive slopes often associated with hillside seeps. The resulting clean discharge water contributes to maintaining good lake and stream water quality, including cool temperatures. Generally, the seep habitats are suitable for breeding and rearing of some species of amphibians.

Isolated Wetlands

Three wetlands are hydrologically isolated, meaning they do not drain to surface water and are not contained in a 100-year floodplain (See Wetland Appendix). The isolated wetlands are small and entirely contained in the corridor. They are rated by King County or the local jurisdiction as either Class 3 or Type IV depending on the jurisdiction where they occur.

The isolated wetlands collect surface runoff, and provide sediment trapping and nutrient cycling resulting in water quality improvement. Water that collects in these wetlands ultimately drains to the lake via subsurface flow. Seasonal ponding may provide amphibian rearing and breeding habitat for some species.

Threatened, Endangered, or Sensitive Plant Species

This section discusses the occurrence in the project area of plant species that are listed as threatened, endangered, and species of special concern under federal, state, or local jurisdictions. Information is also provided on the existing vegetation within the corridor.

Species with Federal Status

Threatened, endangered, or sensitive plant species are usually sensitive to disturbance, and because the corridor and the project vicinity are largely urbanized, there is a low probability for the presence of threatened, endangered, or sensitive species. The Washington State Department of Natural Resources (DNR) lists plant species considered to be federally threatened, endangered, candidate for listing, or sensitive. No federally listed plant species are known to be in the project area or vicinity (See Plant Species Appendix).

Species with State Status

The Washington Natural Heritage Program (NHP; Department of Natural Resources [DNR], 2000) has developed a list of plant species considered to be threatened, endangered, or sensitive within the State of Washington. Data from the NHP indicates that a state sensitive plant species, shining flatsedge (*Cyperus bipartitus* [= *C. rivularis*]), was reported growing approximately 0.02 mile from the corridor in the vicinity of Lake Sammamish State Park. This small, annual flatsedge occurs on sandbars adjacent to fresh water lakes and streams. The species was not observed to occur in the corridor.

The Puget Sound area represents the northwestern extent of shining flatsedge's broad distribution, which includes most of North America extending from southern Canada south to South America. Only a few populations are currently known within the State of Washington. These populations are considered vulnerable or declining; within state boundaries the species could become threatened or endangered in the future. However, throughout its global range, the species is demonstrably secure (See Plant Species Appendix).

IMPACTS

This section describes the effects of Interim Use Trail construction and long-term use, as well as cumulative effects on plants in the corridor. Both native plants and non-native vegetation in the urban matrix are discussed.

Proposed Action

Construction-related Impacts

Plants

Because the Interim Use Trail would be built on an existing structure, no significant adverse impacts to plants are expected. Construction of the Interim Use Trail would not require grading

or filling and thus construction impacts to plants would be limited mainly to plant removal for fence construction and safe trail operation. Culvert maintenance and gravel installation could result in minor impacts to small amounts of vegetation.

Impacts to plants in achieving a safe trail environment would include removal of hazard trees and reduction of vegetation to maintain sight lines at intersections and road or driveway crossings. Several hazard trees have been identified along the route (See the Geology Appendix, Table B-B1 for locations of hazard trees). Vegetation that blocks sight lines at road and driveway crossings would be removed or thinned to increase visibility for trail users and vehicles.

During fence installation, all plants within the fence line would be removed to provide a clear fence line. Impacts along the fence line would be temporary because plants would recolonize the cleared areas within several growing seasons following fence installation.

Currently, plants do not grow on the top of the railbed to any great extent. However, those plants that do exist on the railbed would be impacted by gravel placement. Those plants are typically low stature, weedy, annual forbs and grasses that are limited in extent, do not provide measurable amounts of protection, food, or forage to wildlife, and do not provide other significant ecological functions.

Wetlands

Permanent, direct impacts to wetlands through filling would be limited to wetlands that extend onto the railbed surface, because no new railbed would be built, and because the existing railbed would not be widened. Other construction impacts could include accidental spilling of construction materials, temporary noise disturbance to wetland wildlife, and sedimentation and vegetation disturbance during fence installation. No wetland buffer impacts are anticipated.

Portions of five wetlands are located on the railbed and would be subject to filling from construction (See Figures 3-A, 3-B, 3-C, 3-D, 3-E, 3-F, 3-G, 3-H, 3-I, and 3-J, the GIS maps at the end of Chapter 3, for locations of impacted wetlands). The total area of filling is approximately 0.09 acre (See Table 3.3-3). All five affected wetlands are located in the City of Sammamish, and two of these are less than 2,500 square feet and are thus exempt from sensitive area regulations. The proposed wetland impacts would be regulated by the U.S. Army Corps of Engineers (ACOE); the City of Sammamish would regulate impacts to wetlands greater than 2,500 square feet in total area.

The areas of impacted wetland are poorly vegetated and do not have vegetated buffers because they are located on the railbed. Those wetlands are each of very limited size, and thus they are not capable of providing significant biologic or hydrologic functions (refer to Wetland Appendix for further discussion). No measurable change to wetland function would occur through filling of these areas.

Accidental surfacing material (e.g., gravel) spills from the top of the railbed during trail construction could result in burial of wetland vegetation and soils. The use of Best Management Practices (BMPs) and careful gravel placement during construction would eliminate the largest risk of spilling.

Table 3.3-3. Summary of Potential Wetland Impacts

Wetland	Sub-basin	Total Wetland Area (acre)	Wetland Rating	Impacted Area (Top of Rail Bed) (acre)	
				Proposed Action	Alternative 1
31B	Panhandle	0.024	Not rated ¹	0.019	0.019
30B	Panhandle	0.380	Class 3	0.017	0.017
29A	Panhandle	0.030	Not rated	0.011	0.011
28A	Panhandle	0.153	Class 3	0.012	0.012
22D	Monohon	0.037	Not rated	n/a ²	0.037
16A	Monohon	0.068	Class 3	0.028	n/a
Total				0.087 ³	0.096 ³

¹ Wetland area is smaller than 2,500 square feet and is not rated according to Sammamish/King County Sensitive Area Ordinance.

² n/a = not applicable.

³ Mitigation for impacts would be provided for regulated wetlands on a 1:1 areal compensation ratio.

Culvert maintenance activities generally are limited to periodic clearing of sediments and debris from the culvert and do not usually result in direct disturbance to wetlands. However, a small amount of sediment could be placed in wetlands as a result of culvert maintenance. Small amounts of vegetation in wetlands or wetland buffers may also be cleared to maintain culverts. These activities would result in minor alterations of wildlife habitat in the affected wetlands.

Potential long-term impacts due to culvert maintenance may include local alterations of wetland hydrology. In areas where culverts have been blocked for many years, renewed culvert maintenance could increase drainage up-stream of the culvert, altering wetland hydrology and overbank flooding in localized areas. Also, downstream of the culvert clearing could concentrate flows, increase downcutting of channels, and reduce overbank flow. However, because wetland hydrology is typically supported by high groundwater, flooding, seepage on slopes, and precipitation, minor changes in drainage, overbank flow, and flooding would result in minor localized changes to wetland hydrology.

Threatened, Endangered, or Sensitive Plant Species

Because the shining flatsedge is located outside of the corridor, no impacts to this species are anticipated as a result of Interim Use Trail construction.

Long-term Impacts

Plants

Plants in the corridor are not likely to be subject to significant adverse impacts resulting from long-term trail use. Because the trail would be on an existing structure in a largely urban environment, long-term use would not result in loss of plant species diversity or reduced plant structural diversity in the corridor. Minor impacts could result from maintenance of fences and sight lines at crossings, or from trampling by humans or pets.

Wetlands

Wetlands in the corridor are not likely to be subject to significant adverse impacts resulting from long-term use of the trail. The long-term use would not reduce the existing wetland area, increase habitat fragmentation, increase risks of introduced plant or animal species, or directly result in changes to wetland or wetland buffer functions. The proposed use would occur on an existing structure in an already largely urbanized environment and resource protection measures including fencing and signage would prevent human intrusion. Minor indirect impacts to wetland wildlife could occur including increased human and pet disturbance, and overgrowth of invasive plant species in wetlands or wetland buffers.

Where the corridor crosses through the wetlands of Marymoor Park and Lake Sammamish State Park, it is adjacent to East Lake Sammamish Parkway. Considerable road noise and human presence already occur in these locations, and no significant increase in noise or human presence due to trail use is anticipated. The use of the railbed as a wildlife corridor is primarily for local foraging and dispersal; there is no evidence that the railbed is used as a migratory route by any species (See Wildlife and Fish Section 3.4 for more details). Other direct impacts related to trail use potentially would include increased human and pet trampling of wetland plants and disturbance to soil.

Fencing may promote the formation of Himalayan blackberry hedges in wetlands or wetland buffers because this species is currently established in the area and would grow well on the physical support provided by the fences. The proposed fencing would be installed along the railbed base where, along most of the corridor, reed canarygrass currently grows. Specific impacts of Himalayan blackberry on wetland wildlife and other wetland functions are contingent on the extent of the blackberry colonization, and on the surrounding vegetation composition and other local conditions.

Threatened, Endangered, or Sensitive Plant Species

Long-term impacts to threatened, endangered, and sensitive plant species are not anticipated.

Cumulative Impacts

Plants

Cumulative impacts to native plants have resulted from urbanization in the region. The construction and use of the Interim Use Trail would occur concurrently with on-going local urbanization. Native plant communities in urbanized environments are reduced in area, fragmented, and most often replaced by non-native ornamental trees, shrubs, and mowed turf. In general, in areas adjacent to the corridor, current and future urbanization could result in reductions of lakeshore, upland forest, and wetland buffer plant communities. However, because the Interim Use Trail would be built on a pre-existing structure, construction and long-term use of the Interim Use Trail would not significantly contribute to these cumulative impacts.

Wetlands

Cumulative impacts to wetlands result from regional urbanization. The Interim Use Trail construction and use would occur along with continued residential and commercial development in the associated subbasins and along the lakefront.

This urbanization results in fragmentation and isolation of natural areas. Specifically, wetlands become isolated from upland and lake habitats resulting in loss of habitat support to species that use the wetlands for some life stages or activities. Regional urbanization also results in increased opportunities for wetland degradation through vegetation disturbance, non-native species invasions, and through alterations and destabilization of hydrologic functions.

Because the Interim Use Trail would be constructed on an existing structure and because the location of the structure is already largely within an urban environment, no significant direct wetland impacts would occur, and no contribution to the cumulative impacts to wetlands or wetland buffers is anticipated.

Threatened, Endangered, or Sensitive Plant Species

Cumulative impacts to threatened, endangered, and sensitive plant species are not anticipated.

Alternative 1 Bypass

Construction-related Impacts

Plants

The Bypass Alternative would result in the same impacts as the Proposed Action because the trail would be built on an existing structure for the majority of its length. The bypass would route a section of trail along an existing roadside. Disturbance to plants during construction from gravel placement, and culvert and sight-line maintenance are the same as for the Proposed Action. Both long-term use and cumulative impacts from the Bypass Alternative are the same as for the Proposed Action.

Wetlands

Direct impacts to wetlands associated with the Bypass Alternative would total 0.096 acre in five separate wetlands (See Table 3.3-3). Four of the wetlands are located on top of the railbed (See Figures 3-A, 3-B, 3-C, 3-D, 3-E, 3-F, 3-G, 3-H, 3-I, and 3-J, the GIS maps at the end of Chapter 3 for locations). Wetland 22D (0.037 acre) is located in the corridor and would be impacted by construction of a connecting ramp from the railbed to the Parkway. In addition, approximately 150 square feet of Wetland 22D's buffer would be removed by the construction of the ramp.

The ACOE and the City of Sammamish regulate impacts to wetlands. Of the total direct impact to wetlands, 0.067 acre is exempt from the City of Sammamish Sensitive Areas Regulations because these three wetlands each total less than 2,500 square feet. The Bypass Alternative would avoid one wetland that would be affected by the Proposed Action (Wetland 16A, 0.028

acre), but would impact a different wetland area for the construction of the ramp (Wetland 22D, 0.037 acre; See Table 3.3-3).

These impacted areas are small and are not well-vegetated due to yard maintenance or due to foot and vehicular traffic. They do not provide wildlife habitat or significant hydrological functions (refer to Wetland Appendix for further discussion). Filling of these areas is anticipated to result in no measurable change to wetland functions in the corridor.

Other temporary and permanent direct and indirect impacts to wetlands associated with construction of the Bypass Alternative are the same as for the Proposed Action.

Threatened, Endangered, or Sensitive Plant Species

Because the shining flatsedge is located outside the corridor, no impacts to this species are anticipated as a result of this alternative.

Long-term Impacts

The Bypass Alternative would have the same long-term impacts as those discussed for the Proposed Action because trail use would occur on the existing railbed for most of the route.

Cumulative Impacts

Cumulative impacts for the Bypass Alternative would be the same as for the Proposed Action because the Bypass route occurs in the same developed and developing region.

Alternative 2 No Action

Construction-related Impacts

Under the No Action Alternative, periodic vegetation reductions and possible selected plant removals would be required to maintain a clear corridor. Culvert maintenance would also continue, possibly temporarily impacting small amounts of vegetation.

No construction would occur under the No Action Alternative. Routine maintenance to vegetation and culverts would continue. Impacts to wetlands or wetland buffers would be due to minor changes in hydrology with culvert maintenance, as described for the Proposed Action. No other impacts to plants and wetlands would occur as a result of construction.

Long-term Impacts

Long-term impacts resulting from use of the Interim Use Trail would not occur under the No Action Alternative. The current conditions would be preserved including continued random placement of debris into the wetlands and wetland buffers.

Cumulative Impacts

Impacts to plants and wetlands associated with regional urbanization would be the same for the No Action Alternative as for the Proposed Action and Bypass Alternative.

MITIGATION

Plants

Under both the Proposed Action and the Bypass Alternative, mitigation for construction impacts would consist of avoiding and minimizing potential impacts wherever possible. Mitigation also includes the use of construction BMPs and a vegetation management plan. During construction, a vegetation management plan would be implemented to specify when plant removal is needed, and how areas would be replanted or re-seeded if necessary.

Impacts to plants in the corridor from long-term use of the trail by humans or pets would be mitigated by several actions. Primary mitigation for plant impacts would be specified in a vegetation management plan that would address long-term vegetation management in the corridor. The goal of the management plan is to maintain and monitor native plant communities in the corridor, provide a safe trail environment, and control invasive species. Also, the plan would identify when plant replacement is needed, and would specify plant species, numbers, and locations for native plantings. The plan would follow regulations and incorporate guidelines for native plant management as stipulated by King County. The plan would use a multifaceted strategy including manual, mechanical, biological, cultural, and chemical methods. This strategy is designed to minimize potential negative impacts from vegetation management in wetland and riparian buffers, wetlands, water bodies, steep slopes, deciduous forests, and the urban matrix.

Fences would limit access to sensitive areas, and to some ornamental plantings and areas of mowed turf, reducing the risk of trampling impacts from humans and pets.

Wetlands

Federal, state and local regulations require the proposed project to incorporate mitigation for unavoidable wetland and wetland buffer impacts in the form of wetland creation, enhancement or restoration.

The proposed project incorporates features that avoid, minimize and compensate for wetland and wetland buffer impacts. Avoidance and minimization would include the use of BMPs, fencing, and development of a vegetation management plan.

In accordance with local regulations, unavoidable alteration of Class 3 wetlands and wetland buffer would be mitigated by replacement or enhancement using a 1:1 ratio (on-site and in same sub-basin). The area that would be required for compensation for unavoidable wetland impacts for the Proposed Action is 0.029 acres in the Panhandle sub-basin and 0.028 acres in the Monohon sub-basin, if mitigation is located on site. For the Bypass Alternative, the area needed

for compensation through wetland enhancement is 0.029 acres in the Panhandle sub-basin (on-site and in same sub-basin).

No potential mitigation sites have been formally identified at this time, but several possible locations are under consideration. Prior to final selection of mitigation site(s), detailed examination of hydrology, soil, and available mitigation area, as well as negotiations with the landowners, would be required to determine site availability and suitability.

The County would undertake the mitigating actions by providing compensation for impacts to wetland area and function through wetland enhancement. This would possibly include plantings of native wetland species, and provision of wildlife habitat features such as snags, other woody debris, and nesting sites. In addition, the mitigation area would be fenced, and vegetated upland buffers would be provided to enhance and protect the wetlands and wetland functions. The mitigation requirements are subject to verification and would be determined by King County's Department of Development and Environmental Services and other regulatory authorities with jurisdiction, which may include ACOE and Ecology.

Fencing between the Interim Use Trail and sensitive areas such as wetlands would reduce or eliminate the impacts related to trampling of wetland plants and disturbance of soil. Himalayan blackberry removal would occur as needed where fences promote blackberry hedge growth.

Temporary impacts to wetlands during construction would be minimized through the use of BMPs. These would include performing railbed protection and fence installation during the driest months, and using hand tools to minimize the risk of disturbed soil or sediments entering the wetland. To minimize the disturbance to vegetation, fencing would be located to avoid removal of trees, shrubs and herbaceous plants, wherever possible. To avoid accidental spillage of gravel into wetlands, careful placement and grading of gravel and the use of erosion and sediment BMPs are recommended.

SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

Plants

Neither of the alternatives would result in significant adverse impacts to plants in the corridor because no major grading or filling would be required and because the Interim Use Trail would be built on an existing structure in a largely urbanized environment. The state-listed sensitive plant species, shining flatsedge found in the vicinity of Sammamish State Park, is located approximately 0.02 mile from the corridor, and would not be impacted.

Wetlands

No significant adverse impacts to wetlands or wetland buffers were identified for any of the evaluated alternatives. Direct impacts to wetlands from fill are small and affect low-functioning areas, and are not anticipated to affect wetland function or significantly change wetland area in the corridor.

3.4 WILDLIFE AND FISH

This section describes the regulations that address wildlife and fish protection in the project area, the cover types and associated wildlife in the vicinity, and the occurrence of threatened, endangered, and other species of state and federal concern.

AFFECTED ENVIRONMENT

WILDLIFE

Regulations

Various federal, state, county, and city regulations address the protection of wildlife in the project area (Table 3.4-1). In most cases, city and county regulations reflect Washington Department of Fish and Wildlife (WDFW) recommendations.

Table 3.4-1. City, County, State, and Federal Regulations.

Regulation	Overseeing Agency	Wildlife and Fish Species and Habitats Addressed
Federal		
Federal Endangered Species Act (ESA)	National Marine Fisheries Service (NMFS) U.S. Fish and Wildlife Service (FWS)	All federally-listed threatened and endangered species and critical habitats.
National Environmental Policy Act (NEPA)	Varies	All wildlife and fish.
Federal Migratory Bird Treaty Act	FWS	Most birds.
Fish and Wildlife Coordination Act	FWS; WDFW	All wildlife and fish.
State		
Washington State Environmental Policy Act (SEPA)	King County	All wildlife and fish.
Washington State Endangered Species Act	WDFW	All state-listed threatened and endangered species.
Washington State Fish and Game Code	WDFW	All state-listed Priority Habitats and Species
County and City¹		
King County Sensitive Areas Ordinance, Code Chapter 21A.24	King County	Critical or outstanding habitat for state or federal designated endangered or threatened species; designated stream and wetland habitats; designated wildlife habitat corridors.
County and City¹ (contd.)		

Regulation	Overseeing Agency	Wildlife and Fish Species and Habitats Addressed
King County Comprehensive Plan	King County	Designated fish and wildlife habitat conservation areas; habitats for state- or federally-listed endangered, threatened, or sensitive species; habitat for species of local importance.
King County Surface Water Design Manual, Special District Overlay, SO-200	King County	Great blue heron rookeries.
Redmond Sensitive Areas Ordinance, Code Chapter 20D. 140	City of Redmond	Streams and their associated buffers; wildlife habitat.
Redmond Comprehensive Plan	City of Redmond	Habitats for state- or federally-listed endangered, threatened, sensitive, candidate, or other priority species; Class 1 wetlands and streams.
City of Issaquah Sensitive Areas Ordinance, Code Chapter 18.10.340	City of Issaquah	Wildlife and wildlife habitat; Class 1 streams and Class 1 and 2 wetlands; especially state- or federally-listed threatened or endangered species and their habitats; WDFW priority species.

¹ The City of Sammamish was recently incorporated and does not yet have a sensitive areas ordinance or Comprehensive Plan. The City will apply King County's regulations until the City adopts its own regulations.

Cover Types and Associated Wildlife

The project area passes through four main vegetation cover types: urban matrix, deciduous tree cover (both upland and riparian), coniferous tree cover (upland only), and wetlands (See Figures 3-A, 3-B, 3-C, 3-D, 3-E, 3-F, 3-G, 3-H, 3-I, and 3-J, the GIS maps at end of Chapter 3). A description of these cover types and associated wildlife species is provided below. The Wildlife Appendix provides a list of all wildlife species (with both common and scientific names) expected in the project area vicinity.

Cover types along the project area were identified using aerial photography and field reconnaissance. In general, areas within 30 feet of either side of the proposed trail alignment were categorized into cover types, and individual patches were digitized using GIS. A patch is defined as an area of relatively homogenous vegetation that can be classified as a particular cover type. In some cases, areas extending beyond 30 feet from the proposed trail alignment were also classified (e.g., where a single patch extended beyond the 30-foot boundary, or where vegetation beyond the 30-foot boundary could be easily classified). The minimum mapped patch size was generally one-half acre, although smaller patches of large cottonwoods (minimum three large trees) were also distinguished, because they provide important perch and nest sites for bald eagles (threatened species) and other raptors.

Urban Matrix

Urban matrix is the most abundant cover type in the project area (See Figures 3-A, 3-B, 3-C, 3-D, 3-E, 3-F, 3-G, 3-H, 3-I, and 3-J, the GIS maps at end of Chapter 3). The cover type contains a mix of buildings, asphalt, ornamental gardens, lawns, and shrubby/grassy areas with scattered trees. Naturally occurring trees are deciduous, such as big leaf maple (*Acer macrophyllum*), which are generally 20 to 40 feet tall. Dominant shrubs are Himalayan blackberry (*Rubus discolor*), Scot's broom (*Cytisus scoparius*), and a variety of ornamental species. Unmown grassy areas are dominated by non-native pasture species.

Wildlife species present in the urban matrix cover type are habitat generalists that are adapted to a wide variety of conditions. Characteristic species include European starlings, American robins, American crows, dark-eyed juncos, spotted towhees, house finches, house sparrows, black-capped chickadees, opossums, raccoons, deer mice, and Norway rats.

Deciduous Tree Cover

This cover type consists of mostly deciduous trees (Oregon ash [*Fraxinus latifolia*], black cottonwood [*Populus trichocarpa*], and bigleaf maple) with an understory of swordfern (*Polystichum munitum*), salal (*Gaultheria shallon*), Himalayan blackberry, and salmonberry (*Rubus spectabilis*). Trees are generally more than 40 feet tall, and some cottonwoods reach more than 150 feet in height. Deciduous tree cover is scattered throughout the project area and includes both riparian and upland areas (See Figures 3-A, 3-B, 3-C, 3-D, 3-E, 3-F, 3-G, 3-H, 3-I, and 3-J, the GIS maps at the end of Chapter 3). Forested wetlands are included in the wetland cover type.

Wildlife species associated with the deciduous tree cover type include a variety of songbirds and raptors, small mammals, and a few species of amphibians and reptiles. Deciduous trees and shrubs provide nesting habitat, cover, and forage for songbirds such as warbling vireos, orange-crowned warblers, song sparrows, spotted towhees, black-throated gray warblers, black-headed grosbeaks, and western tanagers (a species observed in the area by residents – Eychaner, 1999). Deciduous areas along streams also provide habitat for beavers. Large cottonwoods present in this cover type are particularly important as perch and nest sites for raptors, such as red-tailed hawks and bald eagles. Bald eagles are a federally-listed threatened species and their occurrence in the project area is described in greater detail in a Threatened and Endangered Species section below. Amphibians and reptiles expected to occur in the deciduous tree cover type include common garter snakes and possibly ensatinas (salamanders).

Coniferous Tree Cover

This cover type consists of mostly coniferous trees (Douglas fir [*Pseudotsuga menziesii*], western red cedar [*Thuja plicata*], and western hemlock [*Tsuga heterophylla*]) with an understory of swordfern, low Oregon grape (*Barberis nervosa*), Himalayan blackberry, and English ivy (*Hedera helix*). Trees in this cover type are generally 40 to 80 feet tall. In the project area, coniferous tree cover occurs as small patches (up to approximately 2 acres) in upland areas (See Figures 3-A, 3-B, 3-C, 3-D, 3-E, 3-F, 3-G, 3-H, 3-I, and 3-J, the GIS maps at end of Chapter 3).

Wildlife species characteristic of the coniferous tree cover type include ruby-crowned kinglets, Steller's jays, red-breasted nuthatch, pileated woodpeckers, vagrant shrews, and shrew-moles. Pileated woodpeckers are a state-listed monitor species, and their occurrence in the project area is described in greater detail later in this section. During winter, coniferous trees provide important cover for a variety of birds, such as black-capped chickadees, Steller's jays, American robin, and song sparrows.

Wetlands

This cover type varies considerably in vegetation cover. Mature deciduous trees dominate a large forested wetland system at the north end of Lake Sammamish (Wetland 34A through D). Other wetlands in the project area are smaller, and include forested, shrub, and emergent habitats (See Figures 3-A, 3-B, 3-C, 3-D, 3-E, 3-F, 3-G, 3-H, 3-I, and 3-J, the GIS maps at end of Chapter 3). Wetlands are further described in Section 3.3, Plants and Wetlands.

Wildlife species characteristic of wetlands in and along the project area include great blue herons, mallards, Canada geese, belted kingfishers, red-winged blackbirds, willow flycatchers, Bewick's wrens, Pacific treefrogs, and western terrestrial and common garter snakes. Wetland 34A through D is expected to provide foraging habitat for beavers and muskrats, and breeding habitat for long-toed salamanders. A raptor nest, likely a red-tailed hawk nest, is also present, and this wetland occurs within a bald eagle nesting territory. Another large wetland, which contains emergent, forested, and open water habitats, is adjacent to the trail at Lake Sammamish State Park (Wetland 4A through E). The emergent wetland area is dominated by reed canarygrass (*Phalaris arundinacea*) and provides habitat for Canada geese, striped skunks, long-tailed weasels, creeping voles, Townsend's moles, vagrant shrews, Townsend's voles, and northwestern garter snakes. Red-tailed hawks and northern harriers are expected to hunt for garter snakes and small mammals in this area. The open water component of the wetland provides habitat for mallards, gadwalls, buffleheads, and other waterfowl. Area residents report observing river otter and wood ducks (presumably in open water and wetland areas) in the trail corridor vicinity (Eychaner, 1999).

Threatened and Endangered Species

This section describes threatened, endangered, and other species of state and federal concern that are known to occur or may occur in the project area vicinity.

Species with Federal Status

The U.S. Fish and Wildlife Service (USFWS) identified the bald eagle, a threatened species, as occurring in the vicinity of the trail corridor (Wildlife Appendix). The agency also listed the peregrine falcon as an endangered species that may occur during migration in the project vicinity. However, since the time that USFWS provided this information, peregrine falcons have been removed from the endangered species list and are now considered a federal species of concern. The agency also identified one candidate species and five other species of concern as potentially occurring in the area (FWS, 1999). Only one of these species, the western pond turtle, is expected to occur in the project vicinity. Habitat for the other five candidate species or species of concern is not available in the vicinity (Wildlife Appendix). Descriptions of species

with federal status that are likely to use the project vicinity are provided below.

Bald Eagle. Bald eagles generally occur along shores of saltwater and fresh water lakes and rivers that support substantial prey densities (generally anadromous fish or waterfowl) (Livingston et al., 1990; Stalmaster, 1987). Breeding bald eagles use large trees for nesting that are generally within a mile of water and have an unobstructed view of water (ODFW, 1996; Anthony and Isaacs, 1989). Nest trees are usually within old-growth or residual old-growth stands, but some nesting also occurs in riverine and lakeside forests dominated by cottonwood (ODFW, 1996). Both breeding and wintering bald eagles forage over open water and use riparian trees, often cottonwoods, for perching.

Area residents report observing bald eagles in the trail corridor vicinity (Eychaner, 1999; Ray, 2000), and WDFW (1999) has identified two bald eagle breeding territories in the area. The breeding territory on the south side of Lake Sammamish encompasses the trail corridor and contains one nest site, which is about 0.25 mile from the trail and is not within line-of-sight. The breeding territory on the north side of the lake, which also encompasses the trail, contains a nest that blew down in the fall/winter of 1999. This nest was located in Marymoor Park, about 0.25 mile from the trail. The eagle pair associated with this territory will likely build a new nest in the same general area in the next few months (Negri, personal communication, 2000). Wintering bald eagles forage along Lake Sammamish and perch in large cottonwood trees in the trail vicinity.

Peregrine Falcon. The peregrine falcon, a species of concern, nests on coastal cliffs and rocks, especially on the outer coast and on the San Juan Islands (Smith et al., 1997). This species also nests in suitable locations in the Puget Sound, and one pair has been nesting in downtown Seattle since 1994. Peregrines feed on smaller birds and often forage in areas with large shorebird and waterfowl concentrations (WDFW, 1999). Suitable nesting habitat (i.e., cliffs) does not occur in the trail vicinity, but spring and fall migrant peregrines may use the area as they track migrating waterfowl and shorebirds.

Western Pond Turtle. The western pond turtle, a species of concern, occurs in streams, ponds, lakes, and permanent and ephemeral wetlands (Brown et al., 1995). This highly aquatic species spends most of its time in water but also requires terrestrial habitats for nesting, overwintering, and dispersal (WDFW, 1993). Western pond turtles use floating vegetation, logs, rocks, and mud or sand banks for basking. Their historical distribution was from Mexico north to the Puget Sound (Brown et al., 1995). However, in recent years, the species has been nearly eliminated from the Puget Sound region, largely due to habitat alteration and loss, disturbance from humans, and introduction of non-native predators (WDFW, 1993). Surveys indicate that only two viable populations remain in Washington state, one in Skamania County and another in Klickitat County (WDFW, 1993). However, two western pond turtles have been sighted in the Marymoor Park wetlands, on the northwest side of Lake Sammamish (WDFW, 1999). These turtle locations are approximately 1,320 feet and 1,650 feet from the trail.

Species with State and/or Local Status

One state-listed endangered species, the western pond turtle, and one threatened species, the bald eagle, are known to occur in the vicinity of the trail (WDFW, 1999). Peregrine falcons, a state-

listed endangered species and a federal species of concern, may use the area during migration. These species are discussed above. One candidate species for listing, the purple martin, and two state monitor species, the great blue heron and the pileated woodpecker, are known to occur in the project vicinity (WDFW, 1991). The red-tailed hawk, a species afforded special protection by King County and the cities of Redmond, Issaquah, and Sammamish, is also present in the project area.

Purple Martin. The purple martin is a summer resident of the Puget Sound area. This species breeds primarily near water and feeds on insects in open areas, often near moist and wet sites (WDFW, 1991). Their presence appears to be limited by the availability of nesting cavities. A purple martin nest box is located near the north end of Lake Sammamish, about 650 feet from the trail. The WDFW records indicate that active nests have been found in this box, as well as in a cavity in nearby remnant pilings from an old cedar mill (WDFW, 1999).

Great Blue Heron. The great blue heron is associated with both fresh and saltwater wetlands, seashores, rivers, swamps, marshes, and ditches (WDFW, 1999). This species feeds on aquatic and marine animals in shallow waters and occasionally preys upon mice and voles (Calambokidis et al., 1985; Butler, 1995). Nests of these colonial breeders are usually constructed in the tallest trees available at a given site (WDFW, 1999). Great blue herons are frequently sighted in wetlands adjacent to the trail and two rookeries are located near the trail (Eychaner, 1999; WDFW, 1999a). One rookery is south of Lake Sammamish at Lake Sammamish State Park, about 1,320 feet west of the trail. The other rookery is near the Sammamish River, about 4,000 feet (0.75 mile) from the northern terminus of the trail.

Pileated Woodpecker. The pileated woodpecker is generally associated with older forests that have large trees, snags, and coarse woody debris (Aubry and Raley, 1993; Nelson, 1988). This species is a primary cavity nester and uses large live trees and snags for nesting and feeding (Bull, 1987; Nelson, 1988). A pileated woodpecker call was heard near Sulphur Point during site visits to the project area in spring 1999, and one was observed in Wetland 29C during a site visit in January 2000. Area residents also report seeing pileated woodpeckers in the vicinity of the proposed trail (Eychaner, 1999).

Red-tailed Hawk. The red-tailed hawk is primarily associated with forest and woodland edges (Shuford, 1993). Nests are usually in large trees within open woods or small woodlots that provide good views of surrounding areas (Shuford, 1993; WDFW, 1993). Unobstructed access to the nest and isolation from disturbance are generally important nest site characteristics as well. However, active nests have been documented in areas with a high degree of disturbance, such as along the Interstate 5 corridor (Smith et al., 1997). Open fields and grasslands with suitable foraging perches, serve as hunting areas, and main prey items are small mammals, birds, and snakes (Shuford, 1993; WDFW, 1993; Preston and Beane, 1993). In the urban environments of Puget Sound, garter snakes appear to be the primary prey of these hawks (Thompson, personal communication, 2000). During field visits in spring 1999 and January 2000, red-tailed hawks were observed in the vicinity of the grassy wetland (Wetland 4A through E) in Lake Sammamish State Park and in the northern part of the forested wetland (Wetland 34A through D) in Marymoor Park. In addition, a raptor nest, likely a red-tailed hawk nest, was located in this wetland during January 2000. The nest is about 630 feet from the proposed trail and is within line-of-sight of the trail when the deciduous trees are not leafed out. Downy feathers and

droppings below the nest tree indicate that the nest site was active in 1999.

FISH

This section describes the stream types and associated fish species in the vicinity, the regulations that address fish protection in the project area, and the occurrence of threatened, endangered, and other species of state and federal concern.

Water Bodies and Fish Use

Lake Sammamish

Lake Sammamish serves as a rearing environment and migratory pathway for both resident and anadromous salmonids, with chinook (*Oncorhynchus tshawytscha*), coho (*O. kisutch*), sockeye, and kokanee salmon (both *O. nerka*), steelhead (*O. mykiss*), and coastal cutthroat trout (*O. clarki*) found in the lake and its tributaries (King County, 1990; Pfeifer, 1992). Other than one unconfirmed anecdotal account, there is no documentation of bull trout (*Salvelinus confluentus*) presence in the Lake Sammamish basin. Tributary thermal regimes are unsuitable for reproduction by this species, and there is no known local spawning population in low elevation tributaries of either Lake Washington or Lake Sammamish (WDFW, 1998). Lake Sammamish also contains a diverse population of resident non-salmonid species (See Fish Appendix, Table G-1) including largemouth bass (*Micropterus salmoides*), smallmouth bass (*M. dolomieu*), yellow perch (*Perca flavescens*), brown bullhead (*Ameiurus nebulosus*), and black crappie (*Pomoxis nigromaculatus*) (King County, 1990).

Fish-Bearing Streams

Information on fish use of streams and drainages passing beneath the project corridor was obtained from WDFW and King County staff, in either draft or published reports. Potential fish habitat was also assessed through field reconnaissance, although this was limited on most of the waters because permission to access stream reaches below the project alignment was not granted.

Approximately 57 streams and smaller drainages (i.e., those with visible surface flow) are crossed by the 10.8 mile project corridor. With few exceptions (e.g., Bear Creek and North Fork Issaquah Creek), streams which flow into Lake Sammamish pass underneath East Lake Sammamish Parkway through one or more culverts (both concrete and corrugated metal pipe [CMP]) upstream of the railbed crossing. All but the largest of the streams also pass through concrete or CMP culverts under the former railbed.

Currently, many of the smaller channels function mainly to convey runoff from the adjacent hillsides above East Lake Sammamish Parkway. Some of these drainages are associated with the wetlands identified along the project alignment. Of these hillside and wetland drainages, about nine have some potential to support fish during all or portions of the year.

The larger streams crossed by the project corridor originate from larger wetland areas or small lakes on the adjacent Sammamish Plateau. Several of these larger streams (at least nine) are

known to provide habitat below barriers for anadromous and/or resident salmonid species including coho, fall chinook, and sockeye/kokanee salmon, rainbow trout, and cutthroat trout. These salmonid-bearing streams include North Fork Issaquah, Many Springs, Laughing Jacobs, Pine Lake, Ebright, Zaccuse, George Davis, and Big Bear Creeks and Perennial Stream 0163. Although other streams within the study area also supported salmonid populations at one time, shoreline development, road and railroad construction, and other activities destroyed fish habitat and created impassable barriers to upstream passage.

Other fish species likely to be present in some of these streams, depending on site-specific habitat conditions, include threespine stickleback (*Gasterosteus aculeatus*), speckled dace (*Rhinichthys osculus*), sculpins (*Cottus* spp.), or brook lamprey (*Lampetra richardsoni*).

Following is a discussion of known fish resources in these nine streams.

Bear Creek

Bear Creek, (also known as Big Bear Creek), a tributary of the Sammamish River, provides the main drainage for the Bear and Evans Creek watershed. It originates in an extensive network of wetlands in southern Snohomish County near Paradise and Echo lakes and flows southerly for over 12 miles before joining the Sammamish River in the City of Redmond (King County, 1990). Bear Creek supports populations of fall chinook, coho, kokanee and sockeye salmon, winter steelhead, rainbow trout, and cutthroat trout (Williams et al., 1975; King County, 1990). Salmon and trout spawn and rear throughout all accessible reaches of the stream, with salmon spawning from September through February (King County, 1990; Egan, 1978) (Fish Appendix, Figure G-2). Steelhead and cutthroat trout spawn from late November into late April (King County, 1990). While generally good, stream habitat has been degraded or eliminated in many reaches of the system through channelization, scouring flows (which remove much of the instream habitat), clearing of the riparian corridor, and removal of large woody debris (King County, 1990). The existing stream crossing consists of a low-rise wooden span supported by wood pilings along both sides of the stream channel and an additional row of supports placed in the middle of the channel. There are no bridge-associated fish passage problems that require bridge replacement or modification.

George Davis Creek

Identified as a salmonid bearing stream, no current information on salmonid usage is provided for George Davis Creek (No. 0144) by the resource agencies, although it is believed to support coho salmon (rearing), cutthroat trout (spawning and rearing), and rainbow trout (spawning and rearing) (Williams et al., 1975; King County, 1990). The creek is 3.46 miles in length, with only 0.4 mile accessible by anadromous fish (King County, 1990). A segment of the creek below the proposed Interim Use Trail has been piped beneath a house, which also acts as a barrier to fish passage (Ecology, 1994). At one time this stream likely supported coho, kokanee and/or sockeye salmon in the lower reaches prior to the creation of fish barriers near the mouth. Sedimentation in the lower reaches and the stream culvert under the residence limit the amount of usable salmonid habitat in the lower 0.40 mile. Above the project corridor, the stream encounters a culvert under East Lake Sammamish Parkway which also creates a barrier to salmonid migration, and a second culvert barrier at rivermile (RM) 0.81 (King County, 1990). Upstream of the project corridor, between RMs 0.2 and 0.8, the stream channel contains

sufficient amounts of large woody debris and habitat conditions that are generally favorable for salmonids (Ecology, 1994).

Zaccuse Creek

Identified as a salmonid bearing stream, no specific information on salmonid usage is provided for Zaccuse Creek (No. 0145A) by the resource agencies, although it is believed to support coho salmon (rearing) and cutthroat trout (spawning and rearing). The creek is 1.18 miles in length, with only 0.05 mile accessible by anadromous fish (King County, 1990). There is a culvert barrier at East Lake Sammamish Parkway (King County, 1990). At one time this stream may have supported coho, kokanee and/or sockeye salmon in the lower reaches prior to the creation of fish barrier(s) near the mouth. The creek flows under the railbed in a 36-inch concrete culvert, which is in good condition. Field personnel did not observe sediment in the culvert or blockage downstream of the trail. The culvert beneath the project corridor at this creek has created a plunge pool, which may act as a fish barrier (White, 1999).

Ebright Creek

Ebright Creek (No. 0149) is known to support coho (spawning and rearing), kokanee, and sockeye salmon (spawning) in the lower reaches below a natural fish barrier, and cutthroat trout (spawning and rearing) and rainbow trout (spawning and rearing) throughout the creek (King County, 1990). The creek is 2.65 miles in length, with 0.45 mile accessible by anadromous fish (King County, 1990). A small dam blocks passage at RM 0.45. Below the barrier, the creek possesses characteristics that favor coho salmon spawning and rearing, and sockeye and kokanee salmon spawning (King County, 1990). Further upstream, the gradient at times approaches five percent through the ravines, forming tiered or staircase features that result in patch gravel and small volume pools that are favored by trout (King County, 1990). Upstream from East Lake Sammamish Parkway, the creek was identified as having an erosion problem upstream to the impassible barrier at RM 0.45 (Ecology, 1994). Bed and bank erosion in the upper and middle reaches of Ebright Creek result in sedimentation of lower reach salmonid spawning and rearing habitat and of culverts under East Lake Sammamish Parkway (Ecology, 1994). Field observations indicated that, at the railbed, the creek flows through two 36-inch concrete culverts, both of which are in good condition and unblocked (Parametrix, 1999).

Pine Lake Creek

Records indicate Pine Lake Creek (No. 0152) is a 2.84-mile-long creek that supports coho salmon (spawning and rearing), sockeye salmon (spawning), and kokanee salmon (spawning) in the 0.60-mile accessible lower reach of Pine Lake Creek below an artificial fish barrier approximately 0.75 mile upstream. The 1.80-mile accessible lower reach of Kanim Creek (No. 0153) also contains spawners (Williams et al., 1975; King County, 1990). Resident cutthroat trout (spawning and rearing) and rainbow trout (spawning and rearing) are reportedly found throughout the creek to its headwaters, with resident-only fish present above RM 1.80 (King County, 1990). Excellent riffle/pool habitat remains, especially where the creek descends from the plateau to Lake Sammamish. At the railbed the creek is diverted under the railroad ballast through two 36-inch concrete culverts. One of the culverts is partially filled with gravel at the upstream opening.

Unnamed Stream No. 0163

Identified as a salmonid bearing stream, no current information on salmonid usage is provided for this unnamed stream by the resource agencies, although it is believed to be suitable for coho salmon (rearing), cutthroat trout (spawning and rearing) and rainbow trout (rearing) (King County, 1990). This stream is 0.70 mile in length with only 0.10 mile accessible to non-resident fish (King County, 1990). There are impassable barriers at East Lake Sammamish Parkway and approximately 400 yards upstream from the road. At one time this stream likely supported kokanee and/or sockeye salmon in the lower reaches prior to the creation of the fish barrier(s) near the mouth. Stream No. 0163 passes through the railbed in a single 24-inch clay culvert, which is in fair condition, although partially blocked (6 to 8 inches) with sediment at the outlet. The stream passes through a 36-inch concrete culvert, which is broken on the east end. The inlet is heavily vegetated and water flow may be blocked. The outlet is partially blocked with sediment. Above the project corridor, the stream is placed in a culvert under East Lake Sammamish Parkway, which creates a barrier to salmonid migration (King County, 1990).

Laughing Jacobs Creek

Available information indicates Laughing Jacobs Creek (No. 0166) supports coho, sockeye, and kokanee salmon, and cutthroat trout in the lower reach (which includes the railbed crossing at mile 0.5), and cutthroat trout throughout most of its length (King County, 1990). A natural fish barrier exists approximately one mile upstream from Lake Sammamish. The existing stream crossing on the project corridor consists of a low-rise wooden span supported by wood pilings set along both sides of the stream channel with additional supports placed in the middle of the channel. The bridge appears to be in good condition and would not likely require extensive retrofitting for trail use. Just upstream from the crossing, Laughing Jacobs Creek flows underneath East Lake Sammamish Parkway SE through two open-bottom culverts.

Many Springs Creek

Although identified as a salmonid bearing stream, no current information on salmonid usage is provided for Many Springs Creek by the resource agencies, although it is believed to be used by coho salmon (rearing) and cutthroat trout (spawning and rearing) (King County, 1990). The main stem of the creek (No. 0164A) is 0.86 mile in length, with only 0.27 mile accessible to non-resident fish (King County, 1990). A waterfall at RM 0.27 blocks all upstream passage on this tributary. There is a tributary (No. 0164B) which provides 0.38 mile of habitat to resident fish only (King County, 1990). At one time this stream likely supported kokanee and/or sockeye salmon in the lower reaches. The creek flows beneath the proposed trail corridor in a 24-inch CMP which is in good condition. However, the culvert is partially blocked (6 to 10 inches) with sediment.

North Fork Issaquah Creek

Coho, fall chinook, sockeye, and kokanee salmon, and cutthroat trout use the lower reach of North Fork Issaquah Creek (No. 0181), which includes the project corridor crossing. A short distance downstream, North Fork Issaquah Creek flows into Issaquah Creek which supports the largest numbers of salmon in the Lake Sammamish drainage. The existing stream crossing

consists of a low-rise wooden span supported by wood pilings set along both sides of the stream channel. The design does not appear to impede fish passage. The bridge appears to be in good condition and would not likely require extensive retrofitting.

Non Fish-Bearing and Unknown Fish Use Streams

Approximately 50 small, mostly intermittent waterways pass beneath the railbed. Most convey water into or out of wetlands. Some may offer habitat suitable for fish but have not been adequately surveyed, particularly below the rail grade, primarily due to access impediments. Others carry seasonal runoff, or flow only during periods of heavy rainfall. Fish species likely to be present in a few of these streams include cutthroat trout, threespine stickleback, speckled dace, sculpins, or brook lamprey, depending on site-specific habitat conditions. Many of the smaller waterways offer habitat for amphibians, and a wide variety of invertebrates. They are important components of the wetland environments found along the rail route, providing habitat and food for a wide variety of wildlife.

Regulatory Environment

Various federal, state, county, and city regulations that address the protection of fish in the project area were listed above in Table 3.4-1. In most cases, city and county regulations reflect Washington Department of Fish and Wildlife (WDFW) recommendations.

Threatened and Endangered Fish Species

Species with Federal Status

Recently, public attention has focused on the listing of some Puget Sound salmonid stocks as threatened or endangered under the federal Endangered Species Act (ESA). Threatened and endangered fish that could be affected by the project include chinook salmon and bull trout. Other fish species with federal status that occur within the project area vicinity include coho salmon, which are a candidate for listing, and Pacific and river lamprey, which are federal species of concern. These species are described in further detail below.

Chinook Salmon. Chinook salmon in Puget Sound, including the project area vicinity, were listed as threatened in March 1999 (NMFS, 1999). Chinook salmon stocks are generally described according to the season that they return to fresh water as mature adults. Although three distinct run-times, spring, summer, and summer/fall, are frequently described in the literature, only summer/fall stocks occur within the project area vicinity (WDF et al., 1993). Chinook salmon are known to occur within Lake Sammamish, and Big Bear and North Fork Issaquah creeks. Summer/fall chinook salmon migrate into fresh water in August and September (Wydoski and Whitney, 1979). Spawn timing begins in late September and peaks in October, similar to other chinook salmon stocks in south Puget Sound (WDF et al., 1993). Following spawning, chinook salmon eggs hatch in about two months, though the amount of time required for incubation depends primarily upon water temperatures (Wydoski and Whitney, 1979; Healey, 1991).

Juvenile chinook salmon typically rear in fresh water for a couple months and migrate downstream in the spring; however, in lake systems such as Lake Sammamish, some individuals may rear in fresh water for longer periods (Wydoski and Whitney, 1979). Studies in Lake Washington suggest that most juvenile chinook are typically found in the littoral zone during early February to early June (Warner and Fresh, 1999). Warner and Fresh (1999) found the greatest catches of chinook occurred during June. The majority of the diet of juvenile chinook salmon while in fresh water consists of invertebrates. Chinook salmon generally feed on insects in the water column or drifting at the surface (Healey, 1991). Chinook probably consume chironomids and other aquatic and terrestrial insects, especially in areas where riparian vegetation is adjacent to the lake shoreline. Habitat characteristics important to chinook salmon include large accumulations of gravel for spawning, and estuarine habitats for marine growth and survival. In addition, stable stream flows are required for egg incubation that occurs throughout the winter and into March (Healey, 1991).

Coho Salmon. Coho salmon have been a candidate for listing in Puget Sound since 1995 (NMFS, 1995). Coho salmon occur in Lake Sammamish, and nine of the project area streams. Coho salmon rear in fresh water for approximately 18 months and outmigrate to estuaries during spring freshets, typically from April through June. Smolts mature in the marine environment for another 18 months before returning to spawn as 3-year-old adults. Adult coho salmon of Lake Sammamish stocks enter fresh water from mid-September to mid-November and spawn from late October through late February (WDF et al., 1993). Freshwater habitat requirements of adult coho salmon includes access to spawning areas. Adults spawn in a variety of habitats and use substrates from fine gravel to rubble in waters less than 3 feet deep.

Shortly after emergence and a brief period of schooling behavior, coho fry become very territorial and typically maintain distinct feeding territories during daylight hours (Sandercock, 1991). Some coho may remain in the same tributary for a full year before they migrate downstream. Stream habitats required by juvenile coho salmon include pools and side channels for rearing. Access to deep pools and cover in the form of large woody debris or undercut banks increases overwinter survival of coho salmon rearing in streams. Others may migrate downstream to larger streams or possibly to a lake to continue rearing.

Bull Trout. Bull trout were listed as threatened in the coterminous United States in December 1999 (USFWS, 1999). Bull trout exhibit multiple migratory strategies, commonly occupy patchy distributions, and are associated with cool water and complex habitats. Bull trout spawn from August through November, depending on location, and embryos incubate throughout the winter. Emergence occurs from early April through May, and fry are bottom dwellers that occupy interstitial spaces of the streambed (Brown, 1994). Resident forms of bull trout spend their entire lives in fresh water, while anadromous forms live in tributary streams for 2 or 3 years before migrating to estuaries as smolts. Char² are generally longer-lived than salmon, and bull trout up to 12 years old have been identified in Washington (Brown, 1994).

² For purposes of fisheries management, the WDFW does not differentiate between Dolly Varden and bull trout and, where necessary for the purposes of ESA, considers the State's native char populations to be predominantly bull trout.

Bull trout were historically distributed throughout the central Puget Sound region, including a portion of the current Lake Washington basin (Goetz, 1994). No spawning populations are known to occur in Lake Sammamish or its tributaries (WDFW, 1998; USFWS, 1998c). However, B. Fuerstenburg (personal communication in USFWS, 1998) believes he observed two native char in Issaquah Creek in 1993, and there have been a few reports of native char in the Lake Washington basin (USFWS, 1998). Several large char (approximately 410 mm long) have been observed passing through the viewing chamber at the Chittenden Locks, but in a two-year creel survey of Lake Washington in 1981 to 83 only one was identified from the sport fishery (Bradbury and Pfeifer, 1992; USFWS, 1998). The lack of evidence of spawning populations in the Lake Washington/Lake Sammamish basins suggests that these fish may have originated in other basins and perhaps were foraging in the basin. Although their exact distribution in the Lake Washington/Lake Sammamish Basin is uncertain, they appear to have an irregular presence in the lower Lake Washington/Lake Sammamish basin, in minor numbers.

River Lamprey. River lamprey are a federal species of concern. These fish are anadromous and parasitic in both fresh and marine waters. Little is known about the fresh water life of river lamprey. River lamprey spawning occurs in the spring (late April through May). When the young (ammocoetes) hatch, they bury themselves in mud and sand where they remain for an unknown period (Wydoski and Whitney, 1979; Scott and Crossman, 1998). The affected stream environment for river lamprey is the same as described above for chinook salmon. River lampreys have been identified in Lake Sammamish adjacent to the project area (WDFW file records, Mill Creek).

Pacific Lamprey. Pacific lamprey is also a federal species of concern. Similar to river lamprey, Pacific lamprey are anadromous and parasitic while in marine waters; very little is known about the fresh water life of these fish. Pacific lamprey spawning occurs in spring or summer (May through September, depending on latitude), and ammocoetes rear in fresh water up to six years before migrating to the Pacific Ocean (Wydoski and Whitney, 1979; Scott and Crossman, 1998). Pacific lamprey may occur in the project area vicinity; however, no population specific information is available within the Lake Washington/Lake Sammamish basin. Pacific lamprey are seen in area rivers and larger tributaries in May or June (WDFW file records, Mill Creek).

Priority Fish Species

Priority fish species include all state endangered, threatened, sensitive, and candidate species; and species of recreational, commercial, or tribal importance that are considered vulnerable. All fish species with state candidate status that occur in the project area vicinity also hold a federal designation and were discussed in the preceding paragraphs. No state sensitive, threatened or endangered fish species occur within the project area. Other fish species that are designated as Priority Species (WDFW, 2000) may occur within the project area vicinity. These include: chum, sockeye, and kokanee salmon, rainbow/steelhead trout, coastal cutthroat trout, white sturgeon, largemouth bass, smallmouth bass, and longfin smelt. These species are briefly discussed in the following paragraphs.

Kokanee (sockeye) Salmon. Sockeye and kokanee salmon are the anadromous and freshwater-resident forms of the species *O. nerka*, respectively. Kokanee and sockeye salmon

co-occur in Bear, Ebright, Pine Lake, Laughing Jacobs, and North Fork Issaquah creeks. Kokanee and sockeye spawn timing overlaps in all of these creeks (sympatric populations), although to a lesser degree in Big Bear Creek than in the other streams.

Kokanee are native to the Lake Washington / Lake Sammamish basin (Seeb and Wishard, 1977; Wishard, 1980; Hendry, 1995; King County DNR, 2000). In Lake Sammamish they mature primarily at four years of age (range three to five). At least two races occur in Lake Sammamish, based on spawn timing: early run, and late run. Early run fish currently spawn predominantly in Issaquah Creek from late July to early September. Late run fish spawn from late September or early October through December. There is a distinct temporal separation between these two races in Issaquah Creek. After approximately 3.5 months of intragravel incubation, newly emerged fry migrate directly to Lake Sammamish for rearing until sexually mature (Big Bear Creek kokanee may rear and mature in Lake Washington).

Late entry kokanee currently utilize Big Bear, Ebright, Pine Lake, and Laughing Jacobs Creeks. Prior to development of the railbed along Lake Sammamish, many of the lake's east bank tributaries supported kokanee spawners (King County DNR, 2000).

An extreme reduction in abundance of the early entry race has prompted a petition to the USFWS for an emergency listing of the stock for protection under the Endangered Species Act (Save Lake Sammamish et al., 2000). As of April 24, 2000, the USFWS had not published an announcement in the *Federal Register* as to whether the petitioned action may be warranted.

Chum Salmon. No known reproducing populations of chum salmon occur within the project area vicinity. Small numbers of chum salmon are typically seen in mid-winter ascending the Chittenden Locks fishway at the west end of the Lake Washington Ship Canal. Their ultimate fate within the basin is unknown.

Rainbow Trout (Steelhead). Rainbow trout are the resident form of *O. mykiss*, while the anadromous form is referred to as steelhead. This species is sought by recreational fishers and is designated as a Priority Species (WDFW, 2000). Rainbow trout spawn and rear in Big Bear, George Davis, Ebright, Pine Lake, and Laughing Jacobs creeks. Rainbow trout are also found in many smaller drainages including streams 0153, 0163, and 0166A.

Coastal Cutthroat Trout. Coastal cutthroat trout have multiple life history forms, including resident, adfluvial, and anadromous. This species is sought by recreational fishers and is designated as a Priority Species (WDFW, 2000). Cutthroat trout spawn and rear in at least nine streams in the project area vicinity. Information on the status of Lake Washington/Lake Sammamish populations is lacking. However in a recent review of their coastwide status, NMFS declared the Puget Sound ESU not warranted for listing (NMFS, 1999). Indirect indices of their abundance in the two-lake system indicate a healthy, and possibly expanding population (Pfeifer, 1992; WDFW file data, Mill Creek). These fish are spring spawners and once they reach maturity will spawn annually thereafter.

White Sturgeon. White sturgeon are food fish and as a result are designated as a Priority Species (WDFW, 2000). White sturgeon are anadromous, and are the largest fish in the fresh waters of North America. These fish can grow to 20 feet long (Wydoski and Whitney, 1979).

White sturgeon are a native species, but are probably rare in the project area vicinity. Very infrequent catches of large sturgeon in tribal gill nets in north Lake Washington in the 1970s were thought to reflect incidental captures of rare individuals that were “trapped” in Lake Washington at the time the lake was lowered. A breeding population in the Lake Washington system has not been verified.

Largemouth Bass. Largemouth bass are a non-native fish, which are important to the recreational fishery. Consequently they are a Priority Species (WDFW, 2000). The species was introduced to Washington by the U.S. Bureau of Fisheries in the 1890s (Wydoski and Whitney, 1979). Largemouth bass in Lake Washington mature at about age three, and spawn from mid-May until the end of June. While potentially present near the mouths of any of the streams crossed by the project corridor, most largemouth bass in Lake Sammamish are located near the lake’s north and south ends (Pflug, 1981).

Smallmouth Bass. Smallmouth bass are also non-native, but are designated a Priority species because they are important to the recreational fishery (WDFW, 2000). This species is far more abundant in the Lake Washington/Lake Sammamish basin than largemouth bass. Smallmouth bass prefer rocky substrates, mature at age 3 or 4, and spawn in the spring months. They spawn and rear along much of the Lake Sammamish shoreline paralleled by the project corridor (Pflug, 1981).

Longfin Smelt. Longfin smelt are a native fish that exhibit anadromy but populations in Lake Washington complete their life cycle in fresh water. The species has been given a Priority Species designation (WDFW, 2000). These fish occupy the limnetic zone, and are typically found at night in water 36 to 72 feet below the surface from July to December. During the day adult longfin smelt move to depths 60 to 120 feet below the surface. Longfin smelt are short-lived spring spawners, and rarely live to age 3. While exceedingly abundant in Lake Washington, their status in Lake Sammamish is poorly understood.

IMPACTS

This section describes the effects of trail construction and use, as well as cumulative effects, on wildlife and fish in the project area.

Proposed Action

The Proposed Action involves trail construction and interim use on the existing railbed, as well as resource protection program measures including fencing and signage of streams and wetlands.

Construction-related Impacts

Wildlife

Construction of an Interim Use Trail could impact wildlife through noise and visual disturbance. Where construction activities (i.e., grading and dumping, spreading, and leveling of gravel) occur, wildlife sensitive to disturbance could be temporarily displaced to surrounding areas

(Table 3.4-2). However, the time period of construction in any given segment of the trail would be short (up to two weeks), and most wildlife would be expected to return to their original use areas after construction was complete. Wildlife that use portions of the project corridor where human presence and activity is currently less common (e.g., Segment 2) are expected to show a greater response to trail construction than wildlife in other portions of the project corridor where human disturbance is currently more common (e.g., Segment 1 and Segments 3 through 7).

Table 3.4-2. Construction and Interim Trail Use Effects on Wildlife, by Action Alternative ¹

Alternative	<u>Action</u>		
	Trail Construction	Interim Trail Use	Resource Protection
Proposed Action	General Wildlife: Short-term displacement of some wildlife, especially in Segment 2.	General Wildlife: Minor disturbance to wildlife, especially in Segment 2. Some wildlife may avoid the immediate trail vicinity. For larger mammals, minor restriction in access to sensitive habitats due to fencing.	Fencing and signage of streams and wetlands.
	Threatened and Endangered (T & E) Species: No impact to existing bald eagle nest site, great blue heron rookery, or likely red-tailed hawk nest site. Potential short-term displacement of nesting and/or foraging pileated woodpeckers to surrounding areas. No impact to other sensitive species.	T & E Species: No impact to existing bald eagle nest site, great blue heron rookery, or likely red-tailed hawk nest site. Potential long-term displacement of nesting and/or foraging pileated woodpeckers to surrounding areas. No impact to other sensitive species.	
Alternative 1	General Wildlife: Same as Proposed Action, except no effect for 1.6-mile trail section (Trail Segment 5 and portions of Segments 4 and 6) where trail bypasses the existing railbed and uses existing roadways instead.	General Wildlife: Same as Proposed Action, except no effect for 1.6-mile trail section (Trail Segment 5 and portions of Segments 4 and 6) where trail bypasses the existing railbed.	Fencing and signage of streams and wetlands.
Alternative 1 (contd.)	T & E Species: Same as Proposed Action, except no effect to pileated woodpeckers where trail bypasses the existing railbed.	T & E Species: Same as Proposed Action, except no effect to pileated woodpeckers where trail bypasses the existing railbed.	

¹ Alternative 2 would have no effect on wildlife.

Fish

Construction impacts are similar for most fish species, regardless of federal or state status. However, there are minor differences in specific impact details from one stream to the next, depending on site-specific conditions.

Impacts to freshwater fish resources resulting from the Interim Use Trail would be those associated with the project corridor stream crossings. Potential construction impacts to fish-bearing streams that would be crossed under this alternative are listed in Table 3.4-3. Since no culvert or bridge replacements are anticipated, sedimentation impacts to crossed streambeds would be limited to sediment that potentially could be generated by: 1) laying of the new gravel/crushed rock trail surface; 2) hole excavation related to fencing, signposts, and bollards; 3) sloughing or eroding railbed material; and 4) ditch and culvert

sediment removal. Introduction of fine sediments through erosion and runoff to the streams can reduce the suitability of spawning gravels by filling gravel interstices, thereby restricting intragravel water flow and associated dissolved oxygen levels. Impacts would be greatest in stream reaches inhabited by salmonids during critical spawning and/or rearing periods, and a blanket of fine sediment could also diminish abundance and diversity streambed invertebrate (fish food) production. Unavoidable or uncontrolled sediment inputs of streambed gravels would affect future suitability for fish spawning unless fall/winter flushing flows liberate sediments introduced during the construction period. Implementation of the recommended mitigation and Best Management Practices (BMPs) for erosion control should properly minimize and mitigate potential adverse impacts to fish.

Other potential short-term construction effects could include spillage of hazardous materials, and displacement of spawning fish by construction noise. Control of hazardous materials is a standard provision in construction contracts and permits. Construction noise should not occur for more than a few days in any given stream crossing vicinity. If instream work is anticipated, the timing of the “work window” specified in the Hydraulic Project Approval (HPA) would normally eliminate the potential impact of noise since spawning fish would not be present.

Long-term Impacts

Wildlife

Interim trail use could impact wildlife through noise and visual disturbance, harassment from dogs, restricted access due to fencing, and habitat degradation through trampling of vegetation. Most of the railbed vicinity consists of developed areas with residential homes, light-industrial buildings, and paved roads. Wildlife that use these areas have a demonstrated tolerance to human activities and domestic animals, and trail use would likely represent an insignificant increase in visual and noise disturbance, and harassment by dogs.

Residential homes and light industrial buildings are not present along most of the northern part of the railbed (i.e., Segment 2). The main disturbance in this area is the traffic from East Lake Sammamish Parkway. Interim trail use in the area could result in some visual and noise disturbance to wildlife, as well as harassment from dogs. Birds that nest adjacent to the railbed in this area could be displaced to areas farther from the trail, and some small mammals may also move to areas farther from the trail. Disturbance effects to larger mammals, such as deer, coyotes, and fox, may be moderated by the fact that these animals are active mostly in early morning, evening, and nighttime, when trail use is expected to be less intensive.

Fencing along portions of the trail could potentially inhibit deer, coyote, and fox access to Lake Sammamish and other sensitive habitats. However, because fencing will be intermittent, it will not entirely prohibit these animals from using these areas. Fencing has the beneficial effect of restricting trail users from adjacent sensitive habitats.

Table 3.4-3 Potential Construction and Operational Impacts of the Proposed Action Common to all Fish-Bearing Stream Crossings

Activity	Potential Impacts of Construction and Operation					Potential Mitigation				
	Short term increase in sediment	Fish disturbance, Noise, Vibration, and Pets	Bank and vegetation damage	Reduce sedimentation	Improve fish habitat	Use of erosion and sediment control BMPs	Careful placement and grading of crushed rock/gravel	Prohibit access to channel and banks; place sign at creek crossings	Restore banks and replant	Avoid instream work; perform work in compliance with HPA
Construction										
Trail resurfacing	X	X	X			X	X			
Gully repair and railbed shoring				X	X				X	X
Increased human activity	X	X	X					X		
Operational										
Ditch cleaning and maintenance	X	X	X							
Trail surface maintenance	X	X	X			X	X			
Increased human activity		X	X					X		

Threatened and Endangered Wildlife Species

The existing great blue heron rookeries in Lake Sammamish State Park and along the Sammamish River and the bald eagle nest associated with the Lake Sammamish territory are all at least 1,320 feet from the trail. The bald eagle nest is not within line-of-sight of the trail. In comparison, WDFW (1999) recommends a 820- to 984-foot buffer around great blue heron rookeries, and the *King County Surface Water Design Manual*, Special District Overlay, SO-200 requires a 660-foot buffer around rookeries. Standard buffer distances are not given by WDFW for bald eagles, but the Pacific Bald Eagle Recovery Plan recommends a buffer of 0.25 mile (1,320 feet) for screened nests and 0.50 mile (2,640 feet) for visible nests from the following

activities: camping, fireworks, timber harvest, and other disturbing activities (USFWS, 1986). Given the distances of the heron rookeries and eagle nest from the trail and the type of human activities that are already taking place in the trail vicinity, disturbance associated with trail construction and use is not expected to affect these nest sites. The eagles associated with the Marymoor Park territory are likely to build a new nest in the next few months. Potential effects to these eagles will be dependent upon the distance of their new nest site from the proposed trail; this information is expected to be available prior to publishing the Final EIS and will be included in that document if available.

The raptor nest (likely a red-tailed hawk nest) in Marymoor Park is about 630 feet from the trail. WDFW recommends that trail construction occur at least 660 feet from red-tailed hawk nests, and that trail use be at least 330 feet from hawk nests. Trail construction is unlikely to affect hawks using the nest site, because the hawks are not expected to be disturbed by short-term light construction activities that are over 600 feet from the nest site. Similarly, trail use is expected to have no effect on the hawks, as long as users are prohibited from venturing off-trail.

Other sensitive species likely or known to occur in the trail vicinity include peregrine falcons, western pond turtles, purple martins, and pileated woodpeckers. Because peregrine falcons frequent the area only during migration, trail construction and use is expected to have no effect on the species. Western pond turtles also are not likely to be affected by the project. Suitable habitat for this species is not present adjacent to the trail; consequently, pond turtle habitat would not be impacted by the Interim Use Trail. Disturbance to nesting purple martins is not expected from trail construction or interim use, because the nesting area for the species is about 650 feet from the trail. Effects to pileated woodpeckers may occur from trail construction and interim use. These birds have been observed foraging in areas immediately adjacent to the trail, and they may be nesting in the area as well. Trail construction and use may cause nesting and foraging pileated woodpeckers to be displaced to areas farther from the trail.

Fish

Long-term (operational) impacts of the Interim Use Trail are similar for most fish species, regardless of federal or state status. However, impacts may be greater on spawning adults of the various fish species than on juveniles rearing in the larger fish-bearing streams. This would be particularly true for large, prominent chinook spawners that may be holding near the trail crossing of Big Bear Creek, or coho in Big Bear, Ebright, Pine Lake, Laughing Jacobs, and North Fork Issaquah Creeks.

Operational impacts on fish resources could result from increased human use of, and access to, fish-bearing streams. These impacts could include: disturbance to spawning fish by humans and domestic pets at stream crossings, fish poaching, trash and debris jettisoned from the trail into streams, and untreated human and animal waste entering streams. However, measures can be incorporated to minimize and mitigate the effect of these impacts.

Other operational impacts to fish resources could result from long-term ditch, bridge, and culvert maintenance, which typically involves the removal of sediment or vegetation blockage from ditches, or at culvert and bridge crossings. While the net effect of culvert and bridge maintenance typically improves stream flows and fish passage, it is nonetheless in-stream work.

Thus, there is a potential for periodic adverse impacts created by the disturbance and downstream release of sediments and debris. These impacts are, to a large degree, historically linked to the current water conveyance facilities of the railbed, many of which are old and outdated in design. The impacts are moderated by the fact that most (but not all) significant sediment and/or vegetation accumulation develops on the smaller watercourses, not the fish-bearing streams.

Cumulative Effects

Wildlife

Trail construction and use would occur in the context of a larger region that is rapidly urbanizing. Other development projects in the region, such as housing and business developments, will cause a reduction in available wildlife habitat. However, trail construction and interim use under the Proposed Action would have only a minor effect on wildlife, and cumulative effects of the project with other development projects in the area are not expected.

Fish

Cumulative impacts are the incremental consequences of an action added to other past and reasonably foreseeable future actions. In this case, the analysis of cumulative impacts takes into account the added effects of all proposed actions under the Interim Use Trail Plan discussed in the project description. If the East Lake Sammamish Interim Use Trail is constructed and maintained as described under the Interim Use Plan, the cumulative impact of trail bed construction, and ditch and culvert maintenance could increase sedimentation in downstream reaches. However, it is not considered significant

Alternative 1 Bypass

Construction-related and Long-term Impacts

Wildlife

The impacts associated with the Bypass Alternative are similar to the Proposed Action. The minor difference is in Trail Segment 5 and portions of Segments 4 and 6, where the Bypass Alternative would utilize East Lake Sammamish Parkway and East Lake Sammamish Place SE for an approximately 1.6 mile section, instead of using the railbed. Human activity along these roadways is more intensive than current activity in the vicinity of the railbed. Wildlife that are present in the vicinity of the roadways are adapted to traffic noise, bicyclists, and other human activities. Therefore, trail construction and interim use are likely to have no effect on wildlife in the area. By comparison, most of the equivalent section along the railbed (which would be used under the Proposed Action) includes residential homes with wildlife that are adapted to considerable human disturbance; trail construction and interim use under the Proposed Action are expected to have minimal effects on wildlife in this area (See Proposed Action above). For the remainder of the trail, the railbed would be used for both the Bypass Alternative and the Proposed Action, and effects to wildlife in the vicinity would be the same under both action

alternatives. Overall, potential impacts to wildlife are not significant for either the Proposed Action or the Bypass Alternative. However, avoidance of a 1.6 mile section of railbed under the Bypass Alternative would represent a slight benefit to wildlife, relative to the Proposed Action.

Threatened and Endangered Species

Distance of the trail from the known eagle nest, heron rookeries, likely red-tailed hawk nest, purple martin nests, and recorded occurrences of western pond turtles, are the same as the Proposed Action, and effects to these species would be the same under both alternatives. As with the Proposed Action, the trail would occur adjacent to areas used by pileated woodpeckers, and potential impacts to this species would be the same where both alternatives use the existing railbed. However, the Bypass Alternative would avoid potential impacts to pileated woodpeckers that may use the 1.6 mile railbed segment, which would not be used as a trail under this alternative.

Fish

Impacts to fish species associated with this alternative are essentially the same as those described above for the Proposed Action. Seven minor, non fish-bearing streams or waterways would not be directly affected by the new trail development along the existing roadways in the bypass reach.

Cumulative Impacts

Wildlife

Activities under the Bypass Alternative would have only a minor effect on wildlife, and cumulative effects of the project with other development projects in the area are not expected.

Fish

Cumulative impacts to fish species associated with this alternative are essentially the same as those described earlier for the Proposed Action.

Alternative 2 No Action

Construction-related, Long-term and Cumulative Impacts

Wildlife

Under the No Action Alternative, the railroad corridor would not be open to the public, and activities in the vicinity would be limited primarily to the existing activities (i.e., ongoing traffic on East Lake Sammamish Parkway and East Lake Sammamish Place SE; human activity at residential homes that border the railbed; cleaning and maintenance of existing ditches and culverts along the railbed; vegetation removal and trimming along the railbed in order to keep the corridor clear). In addition, the remaining ties and rails on the railbed would be removed.

Under these conditions, wildlife presence and use of the project area is expected to remain unchanged. Urban generalists, such as house sparrows, house finches, song sparrows, and robins would remain common throughout the project area. Use of the project area by less ubiquitous species, such as northern harriers, marsh wrens, and coyotes, should remain unchanged. The main areas of use of these species (e.g., the sections of Lake Sammamish State Park and Marymoor Park that border the railbed, and some of the less disturbed wetlands) would not be altered and human disturbance to these areas would not change, relative to existing conditions.

Threatened and Endangered Species

Because habitat conditions and human disturbance in the project vicinity would remain unchanged under the No Action Alternative, no effects to threatened, endangered, and other species of federal or state concern are expected.

Fish

Under the No Action Alternative, the railbed corridor would not be open to the public, and human activities in the vicinity would be the same as current conditions. Impacts associated with vegetation control, ditch, and culvert maintenance activities would be the same as for the Proposed Action.

MITIGATION

Wildlife

Under both the Proposed Action and the Bypass Alternative, trail construction and interim use would have only a minor effect on wildlife, and mitigation to minimize impacts to wildlife is not required. However, there are measures that could be accomplished that would help minimize any potential impacts to wildlife. These measures include the following:

- Avoid use of noise-producing equipment in Segment 2 (where existing human disturbance is less intense than other parts of the project area, and where a likely red-tailed hawk nest and a bald eagle breeding territory are located) during the early part of the nesting season (February to May). Noise disturbance can cause some birds to abandon their nests. In general, birds are most sensitive to disturbance during the early part of the nesting season.
- To minimize disturbance to wildlife and wildlife habitats from use of the trail, install interpretive signs and trail boundary signs. Interpretive signs help educate trail users about wildlife and the importance of protecting wildlife and their habitat. Trail boundary signs and fencing will also discourage off-trail use and the resulting disturbance to wildlife and wildlife habitat.
- To ensure protection of the raptor (likely red-tailed hawk) nest in Marymoor Park, plant cedar trees or other native evergreen vegetation to create a year-round screen

between the nest site and the trail. Deciduous trees currently serve as a screen during the growing season when the trees are leafed-out.

Fish

For the Proposed Action and Alternative 1, construction BMPs for erosion and sedimentation control would be implemented to protect fish habitat. Silt fences or other erosion control would be installed at all stream crossings to mitigate potential erosion impacts during removal of remaining railroad ties, fence construction, and sign installation. Careful placement of gravel near stream crossings using hand tools or light equipment would prevent crushed rock from entering stream channels. Trail shoulders should be stabilized in areas adjacent to streams to prevent erosion and sloughing. Refer to Sections 3.1 (Earth) and 3.2 (Surface Water) for a more detailed discussion of required and recommended mitigation measures to prevent sedimentation impacts. All in-stream culvert maintenance would occur between June 15 and September 15 to avoid potential impacts during critical salmonid spawning and incubation periods.

Construction activities near stream crossings could also be completed during summer low-flow periods, outside of the fish spawning period, which would reduce the potential disturbance from increased construction noise.

After construction, routine culvert and ditch maintenance should be done during the dry season, if possible. The trail would be fenced or screened at stream crossings to protect fish from human disturbance and maintain riparian vegetation. Entry of trail users to stream banks and channels should be prohibited to prevent disturbance and erosion. Leashes should be required to prevent dogs from entering streams and harassing fish. Appropriate signs should be placed at stream crossings to explain the reasons for restrictions. Native riparian vegetation should be restored at stream crossings to improve habitat and provide shading.

For each alternative, including No Action, the gully on the west side of the Bear Creek bridge and unstable stream banks at the George Davis Creek and Stream 0163 crossings should be stabilized and revegetated to prevent further erosion.

SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

Wildlife

Neither of the action alternatives would result in significant adverse impacts to wildlife. The two great blue heron rookeries and the existing bald eagle nest are all at least 0.25 mile from the proposed trail. Interim Use Trail construction and use would not result in significant disturbance to these birds, and nesting habitat would remain unaltered. The raptor nest that is likely a red-tailed hawk nest is approximately 630 feet from the proposed trail. This distance is greater than the WDFW recommendation of a 330-foot buffer distance for trail use but slightly less than the WDFW 660-foot buffer recommendation for trail construction. WDFW indicated that the distance of the existing nest from the proposed trail should be adequate to protect the nest site from potential trail construction and use impacts (Thompson, 2000, personal communication).

Furthermore, avoidance of trail construction in the vicinity of the nest during the early part of the nesting season (February to May), installing fencing and signs to prevent users from venturing off trail, and planting of evergreen vegetation to provide year-round screening of the nest (as recommended in the mitigation section above) would afford additional protection to the nest site.

Fish

As with wildlife, neither of the action alternatives is expected to result in significant, unavoidable, long-term adverse impacts to fish. All short-term, construction-related impacts can be mitigated. Long-term operational impacts of interim trail use are also not expected to be significant, and can be mitigated as described earlier.

3.5 NOISE

AFFECTED ENVIRONMENT

The human ear responds to a wide range of sound intensities. The decibel (dB) scale used to describe sound is a logarithmic rating system that accounts for the large differences in audible sound intensities. Using this scale, humans perceive an increase of 10 dB as a doubling of loudness; for example, a 70-dB noise level sounds twice as loud as a 60-dB noise level. Under ideal listening conditions, people generally cannot detect differences of 1 dB, while differences of 2 or 3 dB can usually be detected by people with normal hearing. In the outside environment, and especially near complex noise sources such as roads, sound level changes of 2 or 3 dB might not be noticeable to most people, while a 5-dB change would likely be perceived as a clear and noticeable change.

When addressing the effects of noise on people, one must consider the "frequency response" of the human ear, or those sounds that people hear best. To address this aspect of the way sounds are perceived by people, instruments that measure sounds are designed to "weight" or emphasize those frequencies that people hear well and to de-emphasize those that people do not hear as well. The frequency-weighting most often used to evaluate environmental noise is A-weighting, and measurements using this system are reported in "A-weighted decibels" or dBA.

For a given noise source, factors affecting the sound transmission from the source and the potential related noise impact include distance from the source, frequency of the sound, absorbency of the ground surface, the presence or absence of obstructions and their absorbency or reflectivity, and the duration of the sound. The degree of impact on humans may also depend on existing sound levels. For example, if existing sound levels are high, introducing a new noise source tends to have less impact than in an environment where background noise levels are low. Sounds from some typical noise sources are listed in Table 3.5-1.

Table 3.5-1. Sound Levels Produced by Common Noise Sources

Thresholds/Noise Sources	Sound Level (dBA)	Possible Effects on Humans
Human Threshold of Pain	140	Continuous exposure can cause hearing loss
Siren at 100 feet	130	
Loud Rock Bank		
Jet takeoff at 200 feet	120	
Auto horn at 3 feet		
Chain saw	110	
Noisy automobile		
Lawn mower	100	
Power tools at 3 feet		
Noisy motorcycle at 50 feet		
Heavy truck at 50 feet	90	
Quiet snowmobile at 50 feet'	80	
Busy urban street, daytime		
Normal automobile at 50 mph	70	Speech interference
Conversation at 3 feet	60	
Quiet residential area	50	Sleep interference
Library		
Quiet home	40	
Soft whisper at 15 feet	30	Minimal effects
Slight rustling of leaves	20	
Broadcasting studio	10	
Threshold of hearing	0	

Source: U.S. Environmental Protection Agency, 1971.

Regulatory Overview

The cities of Redmond, Sammamish, and Issaquah, and King County are responsible for planning and zoning along the corridor. Potentially affected sensitive noise receivers are located along the corridor in these jurisdictions. The applicable noise codes for each jurisdiction are discussed below.

State and Federal Regulations

The U.S. Environmental Protection Agency (EPA) does not have any regulations pertaining to environmental noise, but has conducted studies on the impacts of certain sound levels on public health and welfare. Washington State has established noise standards in the Noise Control Act, Chapter 70.107 RCW, which requires the Department of Ecology to establish maximum noise levels in certain defined areas (RCW 70.107.030(1)). These maximum noise levels are based on sound levels crossing property boundaries, and the limits vary based on the uses of the source and receiving properties. Local governments may adopt comparable provisions for noise

limitations within their jurisdictions, but any differences in the local regulations and those provided for by the state must be approved by the Department of Ecology (RCW 70.107.060(3)).

WAC 173-60 set the State's maximum permissible noise limits based on three classes of Environmental Designations for Noise Abatement (EDNA) applied to noise source and receiving properties. These three EDNA classes are: Class A - residential; Class B - commercial; and Class C - industrial (See Table 3.5-2). These EDNA zones are defined with respect to land use, based on classifications in zoning ordinances or comprehensive plans. Class A EDNA are areas where human beings reside and sleep, including residential areas and community service areas (i.e., hospitals, health and correctional facilities, etc.). Class B EDNA are areas involving uses requiring protection against noise interference with speech (i.e., commercial, governmental, cultural, and religious facilities). Class C EDNA are areas involving economic activities of such a nature that higher noise levels than experienced in other areas is anticipated (i.e., industrial property, warehouse facilities, agricultural property).

Table 3.5-2. Washington State Maximum Permissible Environmental Noise

EDNA of Noise Source	EDNA of Receiving Property			
	Class A Residential		Class B Commercial	Class C Industrial
	Daytime 7:00 am - 10:00 pm	Nighttime 10:00 pm - 7:00 am		
Class A	55 dBA	45 dBA	57 dBA	60 dBA
Class B	57 dBA	47 dBA	60 dBA	65 dBA
Class C	60 dBA	50 dBA	65 dBA	70 dBA

Source: WAC 173-60-040

At any hour of the day or night, the applicable noise limitations may be exceeded for any given receiving property by no more than:

- 5 dBA for 15 minutes in any one-hour period, or
- 10 dBA for 5 minutes in any one-hour period, or
- 15 dBA for 1.5 minutes in any one-hour period.

At no time can the allowable sound level be exceeded by more the 15 dBA. An exemption to the maximum permissible noise level exists for temporary construction activities. Sounds originating from temporary construction are not regulated during the hours of 7 a.m. to 10 p.m. (WAC 173-60-050 (3)(a)) (state exemption applies all week).

City of Redmond

The City of Redmond has established its maximum permissible noise levels to be the same as those of the Department of Ecology (Chapter 173-60 WAC) (refer to Table 3.5-2). The City defines EDNAs based primarily on land use zoning. The proposed corridor includes receiving

properties in all three EDNA classes. The land use section provides more information on land use and zoning designations. Between the hours of 10:00 p.m. and 7:00 a.m., the City's noise limits are reduced by 10 dBA for receiving property within Class A EDNAs.

City of Sammamish

The City of Sammamish is the newest city in King County, incorporated on August 31, 1999. As a recently incorporated city, the regulations established by King County will be followed until the City creates and adopts its own regulations. The maximum permissible environmental noise limits for the City of Sammamish are the same as for King County (Table 3.5-3).

King County

King County has adopted its own noise limits (KC 12.88.020) based on the State's regulations (WAC 173-60-040). The primary difference between these two regulations is that the County's limits include a rural EDNA limitation. The County noise code establishes limits on the levels and durations of noise crossing property boundaries. Allowable maximum sound levels are based on the land use zoning districts of the source and receiving properties (Table 3.5-3). The general zoning categories include rural, residential, commercial, and industrial zones. The most stringent rules apply to sounds received in rural and residential districts, and limits in these areas are 10 dBA lower during nighttime hours.

The portions of the proposed project corridor passing through King County, the City of Sammamish, and the City of Issaquah's annexation area include EDNA classifications for residential, commercial, and industrial uses. There are no rural designation EDNA's within the proposed corridor.

Table 3.5-3. King County's Maximum Permissible Sound Levels for Sound Sources Located within King County

District of Sound Source	District of Receiving Property Within King County					
	Rural		Residential		Commercial	Industrial
	Daytime (7 am- 10 pm)	Nighttime (10 pm - 7 am)	Daytime (7 am- 10 pm)	Nighttime (10 pm - 7 am)		
Rural	49 dBA	39 dBA	52 dBA	42 dBA	55 dBA	57 dBA
Residential	52 dBA	42 dBA	55 dBA	45 dBA	57 dBA	60 dBA
Commercial	55 dBA	45 dBA	57 dBA	47 dBA	60 dBA	65 dBA
Industrial	57 dBA	47 dBA	60 dBA	50 dBA	65 dBA	70 dBA

Source: King County Code, Title 12.88.020

City of Issaquah

The City of Issaquah has not developed specific noise standards. Noise is therefore regulated in accordance with Washington State limits (Chapter 173-60 WAC) described above in Table 3.5-2.

Existing Noise Sources

Existing noise sources along the corridor include vehicles on East Lake Sammamish Parkway, airplanes, boats/watercraft, and miscellaneous neighborhood sounds.

Sound level measurements taken near the East Lake Sammamish Parkway in 1995 and 1998 provide some indication of existing sound levels near this road. The 1995 measurements documented traffic noise levels 50 feet from the road right-of-way ranging from about 65 to 75 dBA during the morning and the afternoon peak periods (Michael R. Yantis Associates, 1995). The 1998 morning peak-period measurements 45 feet from the edge of the road documented sound levels varying from about 65 to about 70 dBA (KCDOT, 1998).

From these measurements it is clear that East Lake Sammamish Parkway traffic is a dominant noise source in areas near this road, and the proposed Interim Use Trail would not change this situation. It is therefore possible to speculate generally about sound levels near this road in locations near and similar to those used in the two sound level measurement studies mentioned above. For locations in the proposed project corridor within about 200 to 300 feet of the East Lake Sammamish Parkway with full exposure to the road (i.e., where the sound path is unobstructed by terrain features or structures that would deflect sound), traffic noise is and will likely remain the dominant noise source. In other areas, where the exposure to the road is different and/or where terrain features influence transmission of sound away from the road, it is not possible to meaningfully speculate about current or future sound levels related to noise from the East Lake Sammamish Parkway.

Noise Receptors

The proposed corridor passes through various land uses including residential, commercial, and recreational areas. Noise receptors vary accordingly, and include local residents, workers in commercial establishments, and users of recreational facilities. Land uses adjacent to the corridor consist primarily of residential properties, with some commercial and office use and recreation/open space. Residential properties within 200 feet of the proposed Interim Use Trail would be the most sensitive noise receptors. Tables 3.5-4 and 3.5-5 approximately tally residences and commercial establishments within 50, 100, and 200 feet of the proposed corridor for the Proposed Action and Alternative 1 respectively. For the Proposed Action, the majority of receptors are residences within 50 feet of the proposed trail. In Alternative 1, most receptors are within 100 feet of the proposed Interim Use Trail.

Table 3.5-4. Preliminarily Identified Noise Receptors within 50, 100, and 200 feet of the Corridor Centerline - Proposed Action

Jurisdiction	Trail Segment ¹	Within 50 feet of the Railbed		Within 50-100 feet of the Railbed		Within 100-200 feet of the Railbed		Within 200 feet of the Railbed With Unknown Zoning Designation
		Residences	Commercial	Residences	Commercial	Residences	Commercial	
Redmond	1	0	0	0	8	0	13	5
	2A	0	0	0	0	14	0	5
Sammamish	2B	1	0	0	0	8	0	6
	3A	11	0	1	0	4	0	
	3B	1	0	8	0	13	0	
	3C	11	0	13	0	10	0	
	4A	5	0	8	0	4	0	2
	4B	16	0	1	0	1	0	
	4C	6	0	33	0	48	0	6
	4D	9	0	14	0	0	0	
	5A ²	5	0	13	0	1	0	
	5B ²	1	0	3	0	11	0	
	5C ²	22	0	8	0	10	0	5
	5D	17	0	1	0	3	0	
	6A	1	0	7	0	33	1	
	6B	2	0	6	0	6	0	
	6C	0	0	6	0	16	0	3
	6D	2	0	9	0	0	0	
King County	6D	3	0	3	0	1	0	
	7A	0	0	0	0	1	0	3
Issaquah	7B	0	1	0	2	0	7	2
	7C	0	4	0	9	0	13	
TOTAL		120	5	140	19	191	34	37

1 - Commercial and residential areas were counted to the west of the proposed corridor unless noted.

2 - Corridor bisects property in segments 5A - 5C. Houses were counted to the east and west of the corridor.

Table 3.5-5. Preliminarily Identified Noise Receptors within 50, 100, and 200 feet of the Corridor Centerline and Bypass Route - Alternative 1

Jurisdiction	Trail Segment ¹	Within 50 feet of the Center of the Railbed		Within 50-100 feet of the Center of the Railbed		Within 100-200 feet of the Center of the Railbed		Within 200 feet of the Railbed With Unknown Zoning Designation
		Residences	Commercial	Residences	Commercial	Residences	Commercial	
Redmond	1 ²	0	0	0	8	0	13	5
	2A	0	0	0	0	14	0	5
Sammamish	2B	1	0	0	0	8	0	6
	3A	11	0	1	0	4	0	
	3B	1	0	8	0	13	0	
	3C	11	0	13	0	10	0	
	4A ²	5	0	8	0	4	0	2
	4B	16	0	1	0	1	0	
	4C	6	0	33	0	48	0	6
	4D ³	2	0	6	0	7	0	
	5A ³	2	0	10	0	12	0	
	5B ³	2	0	12	0	7	0	
	5C ³	0	0	8	0	4	0	
	5D ³	2	0	4	0	11	0	
	6A ³	0	0	10	0	21	0	
	6B	2	0	6	0	6	0	
	6C	0	0	6	0	16	0	3
	6D	2	0	9	0	0	0	
King County	6D	3	0	3	0	1	0	
	7A	0	0	0	0	1	0	3
Issaquah	7B	0	1	0	2	0	7	2
	7C ²	0	4	0	9	0	13	
TOTAL		66	5	138	19	188	33	32

1 - Commercial and residential areas were counted to the west of the proposed corridor unless noted. East Lake Sammamish Parkway is located to the east of the corridor; therefore, properties were not counted to the east of the Parkway.

2 - Corridor is not adjacent to the East Lake Sammamish Parkway; adjacent commercial and residential areas were counted to the east and west of the corridor.

3 - Sections where bypass route will be located along East Lake Sammamish Place and East Lake Sammamish Parkway rights-of-way. Residences were counted to the west of the corridor. To the east of East Lake Sammamish Parkway, sections 5C and 5D respectively include twelve and three properties within 200 feet of the proposed trail.

IMPACTS

Noise sources associated with the proposed project would consist of temporary construction activities and trail operation/maintenance. Noise levels would temporarily increase during

grading and gravel placement. Noise from construction activity would probably only be noticeable as a major local noise source for one or two days per residence, given anticipated gravel placement rates. Equipment operation and truck traffic would add to ambient noise levels. Any noise impacts would be greatest to those receptors closest to the proposed Interim Use Trail and along roadways where construction vehicles would be used. Earth moving equipment, such as dump trucks and backhoes, would most likely be the type of construction equipment used. Table 3.5-6 identifies typical construction noise levels associated with this sort of equipment.

Table 3.5-6. Typical Construction Equipment Noise (dBA)

Type of Equipment	Average Noise Level at 50 feet	Range of Noise Levels at 50 feet
Earth Moving:		
Front Loaders	NA	73-84
Backhoes	85	73-93
Bulldozer	87	77-96
Dump Trucks	88	82-94
Materials Handling:		
Concrete Mixers	85	75-87
Concrete Pumps	NA	81-83
Cranes (moveable)	83	76-87
Stationary Equipment:		
Pumps	76	70-80
Generators	78	71-82
Compressors	81	74-81
Impact Equipment:		
Pneumatic Wrenches	85	84-88
Jack Hammers	88	80-97
Pile Drivers	101(peak)	95-106

NA = Not available

Source: U.S. Environmental Protection Agency, 1971

Proposed Action

Construction-related Impacts

Construction activities related to the Proposed Action include installation of gravel, bollards, signs, bridge upgrades, fencing, and vegetation management/removal. The equipment used in these activities would generate noise, with the most noise probably associated with earth moving equipment during gravel placement and by vehicular traffic (dump trucks and workers' vehicles). Noise from these activities probably would be noticeable as a major source for intermittent periods, and probably would not last longer than one to two days in any given location.

Construction vehicles would temporarily increase noise along the streets and roads used as haul routes. Along busy roads, such as East Lake Sammamish Parkway, such construction traffic

would likely have a minor effect on overall noise levels. Approximately 1428 (714 in/714 out) truck trips would be generated for hauling gravel to the railbed over the 12- to 14-week construction period. Section 3.7, Transportation, discusses truck-related impacts. The estimated time that construction equipment will be in front of any one residence is approximately one to two days. Refer to Table 3.5-7 for a summary of potential noise impacts.

Construction noise is exempt from all noise regulations during daytime hours from 7 a.m. to 10 p.m. for King County, the City of Issaquah, and the City of Sammamish. In Redmond, construction noise received in residential zones is allowed to exceed permissible noise levels between the hours of 7 a.m. to 7 p.m. on weekdays and from 9 a.m. to 6 p.m. on Saturdays (RCDG 20D.100.10-050 (4)). Construction will occur during the 7 a.m. to 10 p.m. window. Most construction is expected to occur within daylight hours only.

Long-term Impacts

Once construction of the Interim Use Trail is complete, noise associated with operation of the trail would be minimal. Likely sources include spoken conversation, footfalls on the trail's gravel surface, and noise from bike traffic. The barking of dogs would also likely occur on an intermittent basis, but is not likely to be a significant impact since the Interim Use Trail would not be a designated dog use area. Noise would likely be highest on the weekends, when trail use is expected to be highest. At locations where the trail is exposed to traffic noise from the East Lake Sammamish Parkway, these trail-use noise sources would be relatively minor and probably would be inaudible at off-trail locations most of the time due to the dominance of traffic noise.

In quieter locations where traffic noise is a less-dominant source, noise from trail usage would likely be a minor source. Noise from trail usage would most likely be audible at outdoor locations near the Interim Use Trail. These same sounds could be audible inside nearby residential receiving locations during the spring and summer months when windows are more likely to be open. Although some people might find such sounds to be intrusive, it is expected that all noise associated with typical trail usage would easily comply with the maximum permissible limits in all the jurisdictions along its route. It is therefore likely that noise from operation of the Interim Use Trail would not cause noise impacts that would be considered significant. Residents along the trail have identified noise occurring at night from trespassers as an issue; it is not possible to predict this potential occurrence. All reasonable measures will be taken to prevent illegal use of the trail.

Cumulative Impacts

Construction will temporarily add to noise levels, adding to overall "urban" noise, but the noise impacts would not be significant. In very quiet areas, noise from trail users might add to other noise sources along the corridor, contributing to a very slight increase in the overall noise level along the corridor. Because traffic is and would remain the dominant noise source along much of the corridor, noise associated with operation of the trail probably would have little or no effect on overall noise levels in most locations. With adequate noise mitigation measures, noise from construction and operation should not significantly contribute to cumulative noise impacts.

Alternative 1 Bypass

Construction-related Impacts

Noise impacts associated with construction of Alternative 1 would be similar to those of the Proposed Action with the exception being the construction of the proposed bypass route. Gravel would not be placed along 1.6 miles of railbed bypassed by Alternative 1. Construction noise impacts would not occur along Segments 5A - 5C. Approximately 65 residences affected by the Proposed Action would not experience direct noise impacts from construction of Alternative 1. Refer to Table 3.5-7 for a summary of potential noise impacts.

Beginning to the north of East Lake Sammamish Place near East Lake Sammamish Shore Lane, a ramp would be built to transition the trail from the railbed to East Lake Sammamish Parkway. The ramp would require construction of a retaining wall, a new culvert over an existing ditch, grading the incline to East Lake Sammamish Parkway from the railbed, and removal of vegetation. The proposed corridor would transition from the Parkway back to the railbed at SE 33rd Street; gravel would again be placed on the railbed from this point south. Residences are located within 200 feet at this transition point. Average duration of construction at any of these residences would be approximately 1 to 2 days with the exception of residences located at the north end of the bypass where construction duration could last up to two weeks.

Long-term Impacts

The noise sources and potential minor noise impacts associated with operation of the Alternative 1 configuration of the Interim Use Trail would be essentially the same as those identified with the Proposed Action. As with construction, the exception would be in Segments 5A - 5C, where the possible bypass route would circumvent some adjacent receivers. This Alternative would reduce the impacts to residents along the 1.6 mile bypassed section of the railbed.

Cumulative Impacts

Cumulative noise impacts resulting from this alternative would be similar to the Proposed Action.

Alternative 2 No Action

Under Alternative 2, the corridor would not be constructed, so there would be no noise associated with either construction or operation of the Interim Use Trail. Activities that would generate noise under Alternative 2 would include the removal of rails and ties that were not previously removed. Earth moving equipment, such as front loaders and trucks, to haul out ties would be used. Average noise levels from earth moving equipment at 50 feet range from 85 to 88 dBA, over the short construction period.

Table 3.5-7. Noise Impacts

Trail Segments	1	2	3	4	5	6	7
Receiving Property EDNA Classification and Jurisdiction	A, B, and C Redmond	A Redmond (2A) and Sammamish (2B)	A City of Sammamish	A City of Sammamish	A City of Sammamish	A City of Sammamish	A, B, and C King County and City of Issaquah
Proposed Action Estimated noise receptors within 200 feet of center of railbed	0 residences; 21 commercial; 5 unknown	23 residences; 0 commercial	72 residences; 0 commercial	145 residences; 0 commercial; 8 unknown	95 residences; 0 commercial; 5 unknown	95 residences; 1 commercial; 3 unknown	1 residence; 37 commercial; 5 unknown
	Potential temporary noise associated with gravel placement and trail usage; residential, commercial, and business park.	Potential temporary noise associated with gravel placement and trail usage; residential area.	Potential temporary noise associated with gravel placement and trail usage near residential areas. Segments 3A, 3B, 3C will have 746 feet of rails/ties removed.	Potential temporary noise associated with gravel placement and trail usage near residential areas. Segments 4B, 4C, 4D/5A will have 4,023 feet of rails/ties removed.	Potential temporary noise associated with gravel placement and trail usage near residential areas.	Potential temporary noise associated with gravel placement and trail usage; residential area.	Potential temporary noise associated with gravel placement and trail usage near residential, commercial, multifamily, retail, and office areas. Segment 7B would have 2,000 feet of rails/ties removed.
Alternative 1 Estimated noise receptors within 200 feet of center of railbed	0 residences; 21 commercial; 5 unknown	23 residences; 0 commercial; 11 unknown	72 residences; 0 commercial	137 residences; 0 commercial; 8 unknown	74 residences; 0 commercial	85 residences; 0 commercial; 3 unknown	1 residence; 36 commercial; 5 unknown
	Same as Proposed Action.	Same as Proposed Action.	Same as Proposed Action.	Same as Proposed Action. In section 4D, potential noise associated with ramp and retaining wall construction.	No construction noise impacts expected.	Same as Proposed Action.	Same as Proposed Action.
Alternative 2 Estimated noise receptors within 200 feet of center of railbed	2 residences; 16 commercial	3 residences; 0 commercial	41 residences; 0 commercial	128 residences; 0 commercial	86 residences; 0 commercial	72 residences	1 residence; 23 commercial
	Noise associated with the corridor would be similar to existing conditions.	Noise associated with the corridor would be similar to existing conditions.	Noise associated with the corridor would be similar to existing conditions. Potential noise with tie and rail removal in sections 3A, B, and C.	Noise associated with the corridor would be similar to existing conditions. Potential noise with tie and rail removal in sections 4B, C, and D.	Noise associated with the corridor would be similar to existing conditions. Potential noise with tie and rail removal in section 5A.	Noise associated with the corridor would be similar to existing conditions.	Noise associated with the corridor would be similar to existing conditions. Potential noise with tie and rail removal in section 7B.

MITIGATION MEASURES

Possible mitigation measures that would reduce or control noise during construction and operation of the proposed corridor are:

- Notifying area residents and businesses as to construction schedules and location of construction sites, including rerouting and lane closures.
- Ensuring that construction equipment is properly maintained with mufflers, engine intake silencers, and turning off equipment when not in use.
- Construction would occur during weekday hours of 7 a.m. to 10 p.m. in the City of Sammamish, King County, and City of Issaquah. In the City of Redmond, construction would be allowed from 7 a.m. to 7 p.m. in residential areas.
- Stationary equipment that makes noise should be placed as far as possible from off-site dwellings while still being able to use the equipment as needed. Equipment subject to this control measure would include pumps, compressors, welding machines, and similar equipment that operate continuously and contribute to high, steady background noise levels.
- Equipment expected to be idle for more than 30 minutes either should be turned off or located more than 200 feet from the nearest residences.
- To the extent feasible and practicable, material staging areas, parking areas, and any other enterprises whose noise may disturb nearby residences should be located as far as feasible from the nearest dwellings.
- Trail operation will be limited to daylight hours to remove evening and nighttime noise related to trail use.

SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

Although temporary construction activities are exempt from noise limits during normal working hours, residents and businesses in the vicinity of the construction would be affected by construction noise. Since the majority of the Interim Use Trail would be located in residential areas, dwelling units would be temporarily affected by construction noise impacts. These impacts would not be significant due to the short construction duration of one to two days per residence. During operation of the Interim Use Trail, typical noise would occur from conversations, walking and bicycles traveling on gravel. Noise from these sources would not cause significant impacts.

3.6 LAND AND SHORELINE USE

AFFECTED ENVIRONMENT

Current Land Use

The proposed East Lake Sammamish Interim Use Trail would be located within the approximately 10.8-mile former Burlington-Northern Railroad right-of-way along the eastern shoreline of Lake Sammamish. The proposed alignment passes through the Cities of Redmond, Sammamish, Issaquah, and unincorporated King County. Single-family residential use is the predominant land use along the corridor. Most of the area served by and adjacent to the proposed trail is urban density residential with a density of 4 dwelling units per acre (King County, 1999). Private beaches and undeveloped properties are situated among the single-family residences. Commercial and industrial businesses are located adjacent to the corridor in the City of Redmond, unincorporated King County, and the City of Issaquah.

The existing railroad right-of-way varies in width along the corridor; it ranges from 20 feet to 200 feet in some areas. For the proposed corridor's purposes, the width would be no wider than the existing railbed, which is approximately 8 to 12 feet.

Historical/Existing Use of the Railroad Right-of-Way

The Seattle, Lake Shore, and Eastern Railway incorporated in 1885 and began servicing Issaquah in 1888 to ship coal and provide passenger service. The line became part of Northern Pacific around 1892 and eventually the Burlington-Northern Railroad about 1970 (Issaquah Historical Society, 2000). In 1981, Burlington-Northern announced that the Redmond-Issaquah line was under consideration for abandonment (Issaquah Historical Society, 2000). In 1994, the Issaquah Darigold plant used the line three times a week; no passenger service existed at this time. Burlington-Northern stopped using the corridor right-of-way in 1996. In 1996, the Burlington-Northern Railroad ceased operations along the proposed East Lake Sammamish Trail corridor. In 1997 King County and the Land Conservancy of Seattle and King County (The Land Conservancy) requested that the Surface Transportation Board impose interim trail use / railbanking on this corridor under 16 U.S.C. 1247(d). Action was deferred by the Board until August 1998 when the Burlington-Northern Railroad notified the Board of its intent to act on its abandonment exemption authority and joined the requests for interim trail use of this corridor. The application to railbank this corridor was approved by the Surface Transportation Board (Decision Summary, September 6, 1998) in August 1998 and a Notice of Interim Trail Use (NITU) was approved for issue. The corridor was sold to The Land Conservancy that same month. In November 1998, King County purchased the corridor from the Land Conservancy with the intention of developing the corridor into the East Lake Sammamish Trail.

The Federal Surface and Transportation Board authorized the railbanking of the corridor right-of-way in 1998. Railbanking is a method by which rail lines proposed for abandonment can be preserved through interim conversion to trail use in accordance with the National Trails System Act (Section 8(d) of the National Trails System Act, 16 U.S.C. §1247(d), and 49 C.F.R. §1152.29). Once a line is railbanked, the corridor is treated as if it had not been abandoned.

Railbanked railroad rights-of-way are maintained as recreational trails or other approved interim uses. At a future date, the East Lake Sammamish right-of-way could revert back to a railway if needed.

Comprehensive Land Use Plans: Redmond, Sammamish, King County, and Issaquah

The following section discusses the comprehensive plans and shoreline regulations for the City of Redmond, City of Sammamish, King County, and the City of Issaquah. Comprehensive plans were examined for applicable policies related to land use, park/recreation, transportation, and capital facilities. This section also discusses land use and zoning designations for the corridor and adjacent land uses. Finally, shoreline management master programs were reviewed for each of the cities and King County. Table 3.6-1 summarizes the current land uses, zoning, and shoreline designations of each trail segment.

City of Redmond

Approximately 1.4 miles of the corridor (13 percent) are located within the City of Redmond. Existing land use along the corridor includes a range of conditions, from park to commercial to residential. This portion of the corridor is presently developed and is primarily commercial and park use. Approximately 15 commercial/business park buildings and 4 residential dwellings are within 200 feet of the corridor; Marymoor Park is located to the west of the corridor. Surrounding land uses include residential and commercial areas. Trail segments 1 and 2A are within Redmond's jurisdiction. Tables 3.5-4 and 3.5-5 in the Noise section show approximately how many residential and commercial structures are located within 200 feet of the corridor for the Proposed Action and Alternative 1 Bypass.

Community Development Guide and Comprehensive Plan

The Redmond Community Development Guide (RCDG; 1997) establishes goals, policies, and plans for the City's land use and development. The City's *Comprehensive Plan* was adopted on July 21, 1998 (Ordinance 1929) and is included within the RCDG. The Comprehensive Plan and RCDG comply with the Growth Management Act (GMA) and other state laws that require local governments to plan for growth within their jurisdictions. The Comprehensive Plan includes the following elements: conservation and natural environment, land use, housing, transportation, utilities, capital facilities, human services, parks and recreation, neighborhoods, city center, annexation and intergovernmental planning, economic development, and historic and cultural resources. The Shoreline Master Program is included in the Comprehensive Plan and the RCDG.

Trail Policies. Within the RCDG is the City's Comprehensive Plan, which includes policies on trails within the Redmond area. The Parks and Recreation element of the Plan contains several policies applicable to trail design and development. Policy PR-14 states that the City of Redmond should work with King County and Washington State to acquire the right-of-way along the eastern shore of Lake Sammamish. Within the Parks and Recreation section of the Comprehensive Plan is Redmond's Trails Plan (policies PR-51 through PR-59) that establishes the City's policies on how existing and future trails should be developed and maintained. Recreation is the main objective of the trail policies, with transportation being

secondary. Trail policies also call for using both paved and unpaved pathways that are separate from streets and road pavement when possible. When there is no option but to locate a trail on a street right-of-way, the Bicycle Way Plan (located in the transportation element) is followed. Within the Trails Plan, the East Lake Sammamish Trail is identified as a proposed multi-use trail.

Table 3.6-1. Land Use Characteristics

Jurisdiction/Trail Segment	Land Use	Zoning	Shoreline Designation
City of Redmond Segment 1, 2A, 2B	Low-moderate density residential, moderate density residential, park and open space, manufacturing park, commercial, and city center	R-4 (Low-moderate density housing), R-8, R-12 (moderate density housing), GC, GC/C (general commercial), MP (manufacturing park), and BP (business park). Trails are allowed within these zones.	Rural designation; public pedestrian and bicycle trails are allowed adjacent to water bodies as long as recreational development is permitted in the underlying zoning. Shoreline substantial development permit would be needed.
City of Sammamish Segment 2B - 6D	Urban Residential	R-4 (four dwelling units per acre) and R-4 - Special Overlay District. Trails are allowed in these zones.	Conservancy and Rural designations; public pedestrian and bicycle trails are allowed adjacent to water bodies as long as recreational development is permitted in the underlying zoning. Shoreline substantial development permit would be needed.
King County Segment 6D - 7A	King County Owned Open Space/Recreation. Adjacent land use designations are urban residential and Other Parks/Wilderness.	R-4 and R-8 (4 to 8 residential dwelling units per acre). Recreational trails are allowed within all zones.	Rural designation; public pedestrian and bicycle trails are allowed adjacent to water bodies as long as recreational development is permitted in the underlying zoning. Shoreline substantial development permit would be needed.
City of Issaquah Segment 7A - 7C	Retail/Office, urban residential, industrial	R - (Retail), SF-S (Single Family - Suburban), PO (Professional Office), MF-H (Multifamily - High Density), and I (Light Industrial). Trails are allowed in these zones.	Conservancy riparian designation; trail crosses N. Fork Issaquah Creek. Public pedestrian and bicycle trails are allowed adjacent to water bodies as long as recreational development is permitted in the underlying zoning. Shoreline substantial development permit would be needed.

The City of Redmond is preparing a Trails Manual that will describe design and construction standards for all types of trails and pathways within the City. While the City is in the process of

creating its Trails Manual, the *Standard Specification for Construction of Trails* by the National Forest Service (United States Department of Agriculture, 1996) is being used as design and construction guidelines for soft surface, multi-use trails (PR-55A). The American Association of State Highway and Transportation Officials guidelines are used for design and construction of paved, multi-use trails (PR-55A).

Land Use Policies. The land use element of the City's Comprehensive Plan also contains policies about trails:

Policy LU-83 - "Trail and pathway systems should be used to provide transportation links and visual corridors to tie the City together. Sidewalks, bike paths and trails should link residential, commercial and manufacturing areas."

Anticipated Population Increase. By 2012, the City of Redmond anticipates a maximum population of 56,550 residents, an approximate 60 percent increase over its 1990 population of 35,800.

Transportation Policies. Within the Comprehensive Plan's Transportation section is the Bicycle and Pedestrian Transportation element. It recognizes that walking and bicycling are a part of many people's daily travel routine. According to this element, developing safe, attractive and efficient bicycle and pedestrian circulation environments in the City is important to provide alternatives to the automobile. Specifically, policies TR-39 through 45 of the Comprehensive Plan outline the City's non-motorized policies. These policies advocate:

- alternatives to motorized transportation;
- developing and implementing a plan that provides for a safe, coordinated system of bikeways, walkways and trails that meet the needs of non-motorized transportation;
- developing a pedestrian and bicycle facility classification system;
- maximizing the safety and functionality of the pedestrian and bicycle system;
- supporting the use of public transit by pedestrians and bicyclists;
- ensuring that new development considers pedestrians and bicyclists; and
- allocating funds for construction and maintenance of non-motorized facilities.

The Bicycle and Pedestrian Transportation element also identifies the corridor as a Class I pathway. A Class I pathway is described as a bicycle facility that is physically separated from motorized traffic and has a minimum width of 5 feet when used exclusively by bicyclists, 8 feet for two-way bicycle travel, and 12 feet when shared with pedestrians.

Included in the transportation section is a policy addressing the Burlington Northern Railroad right-of-way:

Policy TR-68 "Seek reversionary rights to the Burlington Northern Railroad right-of-way to be used for public purposes if the right-of-way is abandoned. Discourage easement uses of the Burlington Northern Railroad right-of-way that preclude or obstruct potential future use for public purposes."

Capital Facilities Policies. Capital facilities service standards were established in the Comprehensive Plan's Capital Facility Plan to determine long-term facility and funding requirements. As a way to implement this element, a six-year Capital Improvement Program (CIP) was developed. The CIP (1997 - 2002), approved by the City's Park Board in 1996, identifies projects that are important for acquisition, development and/or renovation, but have inadequate or no funding. As part of this element, the service standard for trails is 0.25 miles per 1,000 population (CF-16). The East Lake Sammamish Trail is listed as a project that would be developed within 7 to 10 years (RCCP, 1998).

Land Use

According to the City of Redmond's Comprehensive Land Use Plan map (July 3, 1997), the City's land use designations for the corridor are low-moderate density residential, moderate density residential, park and open space, manufacturing park, commercial, and city center.

Zoning

The City's zoning code is a component of the RCDG. The zoning designations along the proposed trail are low-moderate density housing (R-4), moderate density housing (R-8, R-12), general commercial (GC, GC/C), manufacturing park (MP), and business park (BP). Trails generally are permitted within all of these zoning designations.

Shoreline Regulations

The City's Shoreline Master Program (RCCP 20B.95) is included in the Comprehensive Plan and codified in the RCDG (RCGD Title 20D.150). Shorelines that are governed by the City's shoreline regulations are all lands within 200 feet of the line of ordinary high water on Lake Sammamish, the Sammamish River, Bear and Cottage Creeks, the 100-year flood-plain in designated areas, and associated wetlands (RCDG 20B.95.010). Lake Sammamish and its shore are considered shorelines of statewide significance under the state's shoreline regulations (RCW 90.58.030).

Redmond's Shoreline Master Program also contains policies on public access and recreation within a shoreline. Linking shoreline parks and public access points is encouraged through the use of hiking and bicycle paths (RCCP 20B.95.070 (20)(c) and 20B.95.070(40)(e)). A portion of the proposed corridor is located within the rural shoreline designation. Recreation is allowed in all designated shoreline environments (RCDG 20D.150.10-170).

City of Sammamish

Approximately 6.4 miles (59 percent) of the proposed corridor are within the City of Sammamish. The primary land use within the corridor is single-family residential use. Density is typically 4 dwelling units per acre. An exception to the residential character are portions of waterfront property adjacent to the proposed Interim Use Trail that are used for recreation. The City of Redmond owns waterfront property and plans on developing the property into a waterfront park with no on-site parking. The City of Redmond also bought property to the east of the Parkway for possible parking. Both properties are currently zoned residential. Another use within the residential area is Waverly Shores, which is a private boat launch for its members

who live in Waverly Hills; Inglewood Beach Club for members only, most of whom reside in neighborhoods off Inglewood Hill Road; Viewpoint Park Beach Club, and several other unnamed similar private multi-family beaches. Tables 3.5-4 and 3.5-5 in the Noise Section show how many residences are located within 200 feet of the corridor.

Comprehensive Plan

The City of Sammamish incorporated on August 31, 1999. The *Interim Sammamish Development Code* (ISDC), which is based on the King County Comprehensive Plan of 1994 and subsequent amendments, was also adopted on the incorporation date. The *Interim Sammamish Development Code* is used as the principal planning document for the orderly physical development of the City and will guide functional plans, provision of public facilities and services, review of proposed annexations, development regulations and land development decisions (ISDC 20.12.010). The City is developing its comprehensive plan in accordance with the Growth Management Act (GMA), and it is expected to be adopted within 15 to 18 months of December 1, 1999 (Mathes, personal communication, 2000).

The area now known as the City of Sammamish experienced a 32 percent growth in population from 1990 through 1998. The estimated population of the now-incorporated City of Sammamish for the year 1999 was 29,344. The City of Sammamish is expected to grow at 6 percent per year over the next few years, with a project population of 35,632 in the year 2003 (ECONorthwest, 1998).

Land Use

The land use designation adjacent to the proposed corridor is Urban Residential.

Zoning

The City of Sammamish zoning designations (ISDC Title 21A) identify the proposed corridor as R-4 (four dwelling units per acre) and R-4-Special Overlay District. The special overlay district pertains to erosion hazards near a sensitive water body. Trails are generally permitted in these zones (ISDC 21A.08.040).

Shoreline Regulations

As part of an addendum to the *Interim Sammamish Development Code*, the City's Shoreline Master Program was adopted on August 31, 1999 (ISDC 20.12.200). The area's shoreline designations are Conservancy and Rural. Both the Conservancy and Rural shoreline designations require that developments maintain setbacks, provide easements or otherwise permit a trail to be constructed or public access to continue where there is a proposed trail. These policies also pertain to sites that are presently being used and have historically been used for public access (ISDC 25.20.030 and 25.24.030). Public pedestrian and bicycle pathways are allowed adjacent to water bodies, but must be permitted by the underlying zoning (ISDC 25.16.200).

King County

The adjacent land uses of the corridor within the unincorporated portion of King County are residential, parks/open space, and commercial. The proposed corridor is approximately 0.3 miles (3 percent) within King County's jurisdiction. Refer to Tables 3.5-4 and 3.5-5 for a listing of commercial and residential structures within 200 feet of the corridor for the Proposed Action and Alternative 1.

History of East Lake Sammamish Trail in King County Policies

Planning for the East Lake Sammamish Interim Use Trail has been documented in King County plans and policies since 1971. Subsequent plans, listed below, have also identified the corridor as a future trail. The following is a listing of King County plans that have identified the corridor for trail use:

- | | |
|-------------|--|
| 1971 | King County <i>Urban Trails Plan</i> ; the first document to identify the East Lake Sammamish Trail (Motion 625). |
| 1975 | <i>General Bicycle Plan</i> is adopted by King County Council; East Lake Sammamish Trail is included as regional priority (Motion 2420, April 1976). |
| 1982 | <i>East Sammamish Community Plan and Area Zoning</i> is adopted by King County Council, identifying the East Lake Sammamish Trail as a future regional trail corridor. |
| 1989 | <i>King County Open Space Plan and Bond Program</i> is adopted. |
| 1992 | <i>King County Regional Trails Plan</i> identifies the East Lake Sammamish Trail as a proposed trail. |
| 1993 | <i>East Sammamish Community Plan Update and Area Zoning</i> (King County, 1992) identifies the East Lake Sammamish Trail as a future trail corridor. |
| 1993 | King County Non-Motorized Transportation Plan which identifies East Lake Sammamish Trail as a proposed trail. |
| 1996 | <i>King County Parks, Recreation and Open Space Plan</i> was adopted, which identifies the East Lake Sammamish Trail as a future trail. |

Comprehensive Plan

In accordance with the State's Growth Management Act (GMA), King County's *Comprehensive Plan* (1994) guides land use and development throughout the unincorporated portions of King County, and regional services in the County including transit, sewers, parks, trails, and open space. The current Comprehensive Plan was adopted in 1994 in accordance with GMA with amendments to the Plan adopted from 1995 through 1999.

Recreation/Open Space Policies. The County's Comprehensive Plan includes policies addressing trails in Chapter Ten - Parks, Recreation and Open Space. The *King County Park, Recreation and Open Space Plan* (1996) serves as a functional plan for the Comprehensive

Plan and implements the Comprehensive Plan's policies. The following Comprehensive Plan policies are applicable to trails:

- Policy PR - 103** King County's primary focus is that of a leader in providing regional parks and open space systems, facilities and services to King County residents. Regional facilities are defined as being "sites and facilities that are large in size, have unique features or character and/or cross-jurisdictional boundaries."
- Policy PR-104** "Local parks, trails and open spaces should be provided in each community, in both urban and rural areas, to enhance environmental and visual quality and meet local recreation needs. Local means smaller sites and facilities to serve close-to-home, day-to-day needs of the community."
- Policy PR-105** "A variety of measures should be used to preserve regional and local parks, trails and open space. King County will rely on incentive, regulations, trades or purchases of lands or easements."
- Policy PR-107** "King County will work with cities, adjacent counties, tribes, state and federal agencies, school districts, community organizations, non-profit organizations, land owners and other citizens to promote and protect all aspects of environmental quality and preserve open space and multi-use recreational opportunities."
- Policy PR-201** "King County will own and manage a regional open space system with a major focus on natural systems and multi-use trails."
- Policy PR-306** "Local trails should be acquired when identified in *the Park, Recreation and Open Space Functional Plan* or when identified as part of a community trail network. If feasible, these trails should provide handicap accessible access in conformance with the Americans with Disabilities Act, and shall be developed to accommodate some or all of the following uses: hiking, cycling, running, and horseback riding."

The *King County Regional Trails Plan* (1992) was also adopted as a functional plan for the Comprehensive Plan. It included the East Lake Sammamish Trail as a proposed trail. At that time, the Burlington Northern Railroad still maintained ownership of the corridor; therefore, short-term development included improvement and widening of the shoulders of East Lake Sammamish Parkway for bicycle and pedestrian activities. Over the long term, the Plan indicated that the East Lake Sammamish Trail would be located on the railbed and include a 12-foot wide trail with 2-foot soft shoulders on each side, paralleled by a soft surface equestrian trail to be used by pedestrians, bicyclists, and equestrians.

Anticipated Population Increase. King County's population is anticipated to increase from 1,677,000 in 1999 to 1,833,000 to 1,856,000 in 2010, an increase of approximately 10 percent (King County, 1999).

Transportation Policies. Although some trails in the County are seen primarily as recreational trails, bicycle commuters use them as an alternative mode of transportation. The

County's Comprehensive Plan includes policies that address alternative and non-motorized transportation. In 1993, the King County Council adopted the *King County Non-motorized Transportation Plan*, which implements these policies, and was later adopted as a functional plan of the Comprehensive Plan. The following Comprehensive Plan policies pertain to pedestrians and bicycles:

- Policy T-515** "King County should plan, design, and implement a system of services and facilities that support integration of regional and local services, and that facilitate access to the system for pedestrian, bicyclists, transit collection/distribution services, and persons with disabilities, thereby providing a viable alternative to auto usage."
- Policy T-531** "Pedestrian and bicycle transportation should be promoted countywide to increase safety, mobility and convenience for non-motorized modes of travel. These efforts should emphasize the ability of non-motorized modes to extend the efficiency of regional transit, promote personal mobility in a range of land use areas and expand the transportation alternatives available to the public."
- Policy T-535** "Road design and traffic control of residential streets should give priority to pedestrian and bicyclists while allowing access to residences."
- Policy T-537** "Unused rights-of-way should be inventoried and developed as pedestrian, bicycle, and Americans With Disabilities Act connectors."
- Policy T-538** "King County design standards should allow flexibility in selecting features which provide dedicated pedestrian, bicycle, and American With Disabilities Act facilities."

Capital Facilities Policies. The Facilities and Services section of the County's Comprehensive Plan outlines the basis for deciding when, where, and how facilities and services should be provided in King County. Ensuring that adequate facilities and services are available or can be made available to support future development is part of King County's responsibility under GMA. Identifying needs for facilities and services based on the projected location of growth is part of the capital improvement program. As part of GMA, the County is required to develop a capital facilities plan that includes an inventory of existing capital facilities owned by public entities, a forecast of the future needs for capital facilities, including the proposed locations and capacities of expanded or new facilities, and a six-year plan that will finance the expanded or new facilities. The *King County Park, Recreation and Open Space Plan* (1996) includes an assessment of park and open space needs, the County's Capital Improvement Program (CIP) for parks and open space, and funding that pertains to parks and recreation. The East Lake Sammamish Trail is listed as a parks CIP project.

Community Plan Policies. Prior to GMA, King County developed community plans for unincorporated King County that would implement the County's Comprehensive Plans. The East Sammamish area was one of these community-planning areas. Under GMA, the Comprehensive Plan prevails over all over previous plans; community plans were repealed as separate plans when the Comprehensive Plan was adopted. Portions of the East Sammamish policies and zoning in the 1993 *Executive Proposed East Sammamish Community Plan Update and Area Zoning* (King County, 1993) were adopted as part of the County's Comprehensive Plan

as Policies CP-201 through 214. The following Comprehensive Plan policy, from the East Sammamish Community Plan Update, relate to trail development:

Policy CP-214 "When the development of properties occurs in the East Sammamish planning area, public access or easements should be required to complete the development of a local trail system for those areas where existing trails have historically been used by the public, or where the *King County Parks, Recreation and Open Space Plan* identifies proposed trail alignment for regional and local trails. The Parks Division shall review the application during the development review process."

Comprehensive Plan Update. According to GMA, a comprehensive plan can be amended once a year to address technical updates and make revisions that do not require substantive policy changes. The King County Comprehensive Plan has had amendments each year from 1995 to 1999. Once every fourth year, a comprehensive plan can undergo a complete review, which can address broader policy issues and amend them accordingly.

King County is currently undertaking this four-year process for the Year 2000. It will be the first significant revision of the Comprehensive Plan since its adoption in 1994. The Plan Update will include elements required by GMA and will be grouped into major themes: Livable Communities, Linking Land Use and Transportation, Rural Legacy, and Environmental Protection. Changes due to the Endangered Species Act are also addressed. The updated Comprehensive Plan is scheduled for adoption in November 2000. According to the draft Year 2000 Comprehensive Plan Update, the land use and zoning for the corridor would not change from 1999 (King County, 1999).

Land Use

Within unincorporated King County, the land use designation for the corridor is King County Owned Open Space/Recreation (King County, 1999). Adjacent land use designations are: to the east and west of the corridor, urban residential (4 - 12 dwelling units per acre); to the east of East Lake Sammamish Parkway, urban residential (more than 12 dwelling units per acre), and to the west land use is designated as Other Parks/Wilderness (King County, 1999).

Zoning

The zoning designations for the proposed Interim Use Trail in King County according to the King County Zoning Atlas (King County, 1999) are R-4 and R-8 (4 to 8 residential dwelling units per acre). Trails are generally allowed within all zones (KCC 21A.08.040A).

Other Studies Relating to Land Use

In addition to the King County Comprehensive Plan and adopted functional plans, King County has developed studies of the East Lake Sammamish Parkway relating to bikeways/pedestrians and land use. These studies are the *East Lake Sammamish Parkway Design Assessment Report* (1998), the *Bikeway/Pedestrian Trail Corridor Study: East Lake Sammamish Parkway* (1986),

and the *Lake Sammamish Water Quality Management Project* (1999). These documents are summarized below.

The *East Lake Sammamish Parkway Design Assessment Report* (1998) was developed in response to residents' concerns about lack of a sense of community, safety issues along the entire length of the Parkway, and the ability of the Parkway to handle current traffic volumes. The report assessed a number of Parkway safety and roadway enhancements including left turn lanes, signalization, sight distance improvements, illumination, landscaping, sidewalks, and truck traffic. Analysis of pedestrian walkways on the Parkway determined that a separated walkway was preferred. Locations along the Parkway that could accommodate both a shoulder and a separated walkway were identified. The study concluded that non-contiguous separated walkways were feasible on about 20 percent of the Parkway's existing east side right-of-way and only 12 percent on the Parkway's west side existing right-of-way (King County, 1998).

The *Bikeway/Pedestrian Trail Corridor Study for the East Lake Sammamish Parkway* (1986), also known as the "Cottingham Study," analyzed the trail corridor along East Lake Sammamish between Redmond and Issaquah. Alternatives were developed for locating a bicycle/trail corridor using the railroad right-of-way, East Lake Sammamish Parkway right-of-way, and a combination of both. Alternative 1 would improve the Parkway's shoulders to provide a Class II facility. Alternative 2 would develop a Class I bike lane on the Parkway's western right-of-way. Alternative 3 would be a Class I facility on the railroad right-of-way. The report found that Alternative 1 would be the most feasible in the short term, since the railroad right-of-way was still owned by Burlington Northern, but Alternative 3 would provide the best overall trail corridor (King County, 1986). For Alternative 3, the report found that, if the facility were sited entirely on the railroad right-of-way, some properties would be bisected and an alternative route would be recommended and examined for these areas.

The *Lake Sammamish Water Quality Management Project* (1999) reports the findings of nine research projects that evaluated different management alternatives for controlling phosphorous inputs to Lake Sammamish. Management alternatives evaluated included strategies to treat stormwater runoff in stormwater facilities and non-structural strategies such as improving erosion control at construction sites, developing education programs, and identifying point sources of pollution in the basin. Included in this report is a description of land use cover in the Lake Sammamish basin. In 1994, 46 percent of the drainage basin was within the urban growth boundary established by GMA (King County, 1998). Land use estimates for 1985, 1996, and full build out at zoned capacity showed that the most significant future land use change was a reduction in forest use (1995 - 70 percent; 1996 - 50 percent, and 2026 - 30 percent) and an increase of single family residences (1995 - 20 percent; 1996 - 38 percent; and 2026 - 55 percent). Full build out is expected to occur before 2026. If development occurs at 1995-1997 rates within the basin, then full build-out could occur before the expected 30-year time period (King County, 1998).

King County Shoreline Regulations

King County's Shoreline Master Program (KCC Title 25), in accordance with the state's Shoreline Management Act, applies to shorelines along streams with a mean annual flow of 20 cubic feet or more per second, lakes that are 20 acres or more in size, the marine shorelines of

Puget Sound and wetlands associated with these areas. According to the King County Comprehensive Plan (King County, 1994), protection of critical areas would take precedence over shoreline visual and physical access.

Within unincorporated King County, the proposed corridor crosses over the Many Springs and Laughing Jacob's Creeks and passes within 200 feet of the Lake Sammamish shoreline. The shoreline designation in this area is Rural. One of the purposes of the Rural environment designation is to maintain open spaces and opportunities for recreational use (KCC 25.20.010).

According to Washington state shoreline regulations, Lake Sammamish's shoreline is a "shoreline of statewide significance" (RCW 90.58.030). Development proposed in shorelines of the state shall "maintain setbacks, provide easements, or otherwise develop the site to permit a trail to be constructed or public access to continue where: 1) there is a proposed trail in the King County trail system; or 2) part of the site is presently being used and has historically been used for public access (KCC 25.20.030 (H))." Public pedestrian and bicycle trails are allowed adjacent to water bodies (KCC 25.16.200 (I)) as long as recreational development is permitted in the underlying zoning (KCC 25.16.200 (A)). As mentioned earlier, a trail is permitted within the underlying zoning designation. If a substantial development permit is required, it would be for "any development of which the total cost or fair market value exceeds two thousand five hundred dollars, or any development which materially interferes with the normal public use of the water or shorelines of the state" (RCW 90.58.030 (3)(e)).

City of Issaquah

The land use within the City of Issaquah consists of retail/commercial and a variety of uses in the City's newly annexed area, the North Issaquah Annexation. In November 1999, the City of Issaquah's citizens voted to annex a portion of land north of Interstate 90 that became effective on February 28, 2000. The area's zoning is comparable to the County's existing zoning. In Issaquah's municipal code (18.06.070), a newly annexed area must have the most comparable City zoning to what was in effect under the County's jurisdiction.

The approximate length of the corridor within the City of Issaquah is 2 miles representing approximately 18 percent of the total corridor. Existing land uses in the annexation area along the proposed corridor include commercial, office, and quarry mining. There are some single-family dwellings located in small areas along or adjacent to the Parkway. The City's future plans for the area are for mixed-use development that includes increased housing and provision of transportation alternatives other than single-occupancy vehicles. Refer to Tables 3.5-4 and 3.5-4 in the Noise Section for structures within 200 feet of the corridor.

Comprehensive Plan

The City of Issaquah's *Comprehensive Plan* was adopted in April 1995 and amended in September 1997 and December 1999 in accordance with GMA. In addition to a variety of other elements, the City's Comprehensive Plan includes policies on park and trail development, transportation, and capital facilities within the city's boundaries.

Recreation/Open Space Policies. Within the Comprehensive Plan, Policy P 5.5 specifies that the *Urban Trails Plan (Non-Motorized Transportation Plan, 1995)* and the 1992 *Issaquah Area Wildlife and Recreation Trails Plan* serve as guidelines and policy direction for future planning for parks, open space, and recreation. These plans are discussed in Section 3.11, Recreation. The City's Comprehensive Plan also states that there should be regional coordination and cooperative planning efforts with other jurisdictions in order to provide facilities that are beyond jurisdictional boundaries (Policy P-8.1).

Anticipated Population Increase. The population of the City of Issaquah is projected to increase at a 2 percent annual growth rate (City of Issaquah, 1995/1997).

Transportation Policies. The transportation policies included in the Comprehensive Plan include policies on rail and non-motorized transportation. The Comprehensive Plan identified that future uses of the Burlington Northern railroad include a historic tourist train from Issaquah to Woodinville, operation of a trolley line, Regional Transit Authority option for an Eastside commuter rail line, expanded rail freight service, and/or a bicycle trail if the line is vacated. Policy T 2.4.1 encourages "preservation of the existing Burlington Northern Rail facilities for rail transportation purposes."

The City of Issaquah has developed a non-motorized transportation plan that was adopted as part of the Comprehensive Plan called the *Urban Trails Plan (1995)*. The general policies on non-motorized transportation facilities are included in the Comprehensive Plan in policy T 2.3, Non-Motorized Facilities. The *Urban Trails Plan* map is used to guide future trail projects. The proposed corridor would connect with proposed pedestrian improvement projects and multi-purpose trails within the City. The *Urban Trails Plan* is described in Section 3.11, Recreation.

The former Burlington Northern railway corridor is shown in the Parks Plan as the Rainier Greenway, in the Urban Trails Plan as part of the City's non-motorized transportation trail system (urban corridor), and is also planned as part of the Millennium Trolley Project. Thus, the City of Issaquah considers the corridor a greenway, non-motorized trail, and trolley project that runs parallel to the existing train tracks. Where the tracks have been removed, the various designations apply to the former railbed. The trail is parallel to the train tracks from Gilman Boulevard south to East Sunset Way and at East Sunset Way the trail is then located on the former railbed south to Second Avenue.

Capital Facilities Policies. Within the Capital Facilities element of the City's Comprehensive Plan, proposed projects, priorities, and estimated costs of park and non-motorized facilities are included. The Capital Facilities element describes the City's existing non-motorized facilities and system deficiencies and contains goals, objectives, policies and design guidelines that will guide the development of future facilities. The City's Capital Improvement Plan (CIP) incorporates park and facilities needs for its citizens and lists those projects that the City will own and operate. Although the proposed trail would not be under the City of Issaquah's jurisdiction, it would provide additional recreational facilities to accommodate future growth in the City. The City of Issaquah adopted new level of service standards for parks in December 1999 that would include the proposed trail in calculations of recreation supply for future planning purposes (City of Issaquah, 1999).

Land Use and Zoning

The land use designation for the portion of the trail in incorporated Issaquah is Retail/Office; the zoning designation is Retail. Zoning in the annexation area would be SF-S (Single Family - Suburban), PO (Professional Office), MF-H (Multifamily - High Density), and I (Light Industrial). Trails are permitted in these zones.

Shoreline Regulations

The City's Shoreline Master Program was adopted in October 1990 and establishes goals and policies, designates shoreline environments, and sets shoreline standards and uses. The proposed trail is adjacent to wetlands associated with Issaquah Creek and is designated Conservancy Riparian. Recreational uses are permitted in this environmental designation. Within the City's annexed North Issaquah area, the North Fork of Issaquah Creek would be crossed by the proposed Interim Use Trail, in addition to wetlands that are within the corridor and adjacent to the railbed. The City will follow King County's Shoreline Regulations for the North Issaquah Annexation area until the City creates and adopts its own regulations.

Property Values

A number of scoping comments were received indicating concern about impacts to property values. Property value is not an element of the environment required for study in an Environmental Impact Statement (WAC 197-11-444), to the extent that property values change as a result of environmental factors. These environmental factors are discussed in the EIS. The fact that consideration of property values is not required for consideration in the EIS does not preclude decision-makers from considering these factors.

IMPACTS

Land use impacts include temporary, construction-related changes in land use and general description of adjacent land use activities. Long-term impacts include the consistency of the proposed project with adopted local land use plans and policies, and the direct and indirect impacts of the corridor's operation on overall land use trends, privacy/visual impacts, property values, and safety, recreation, and public services. Refer to Sections 3.5, 3.11, and 3.8 for analyses of noise, recreation, public services, and safety impacts, respectively.

The proposed corridor is adjacent to approximately 315 homes with 26 waterfront residences accessed by crossing the corridor. Of these properties, approximately 48 properties would be bisected by the proposed trail dividing residential access to parking areas or the lake or to private docks. The majority of bisected properties are within the City of Sammamish along Lake Sammamish Place SE. The proposed Interim Use Trail would bisect approximately 52 private driveways serving more than 5 private properties and 7 public roads.

Proposed Action

Construction-related Impacts

Construction of the Proposed Action would temporarily alter adjacent land uses along the corridor. Construction activities include removal of remaining ties and rails, gravel and bollard placement, bridge upgrades, and sign and fence installation in residential and commercial areas. Approximately 4 inches of gravel would be placed along the entire length of the corridor after the ties and rails were removed.

Approximately 340 residences would be impacted for 1 to 2 days each over the course of gravel placement. Gravel would be placed at a rate of approximately 2,000 linear feet per day. Construction would occur on the railbed or immediately adjacent to the railbed. Construction activities include gravel and bollard placement, bridge upgrades, and sign and fence installation and would occur in residential and commercial areas. Of these construction activities, gravel placement would have the most impact on neighboring properties because it would cause a greater disturbance for a longer period of time. However, all construction-related impacts have a brief duration. Gravel placement impacts on adjacent land uses would generally include dust, noise, visual intrusion, access restrictions, and construction traffic. These construction impacts would be temporary and last about 1 to 2 days for each affected property. Because of the relatively short duration of impacts, they are not considered significant.

Long-term Impacts

Land uses immediately adjacent to the corridor are primarily residential with some commercial and industrial uses. Residents along the corridor have expressed concerns about the impacts of trail operation on their property. Impacts on privacy, property values, safety, recreation, and public services with the opening of the trail were identified during the scoping process (See Table 2.3). Future land use within the Lake Sammamish basin is expected to have an increase in single family residences and a decrease in forest use (King County, 1998). This is expected to increase demands for recreation facilities within this basin.

Privacy/Visual Impacts

Urbanization in the East Lake Sammamish area continues to impact private property. Development of the proposed action, particularly when combined with future development actions in the vicinity of the corridor, would result in a less secluded and private atmosphere as the area continues to develop. Homeowners along the proposed corridor would experience more people passing by their homes, which some have indicated would diminish the enjoyment of their property. The placement of fencing could provide more privacy, but could also alter existing views of the lake. Aesthetic impacts of the proposed corridor are discussed in Section 3.10.

Safety, Recreation, and Public Facilities and Services Impacts.

Concerns about trail user and property owner safety are the most frequently received scoping comments. Concern about driveways crossing the trail, safety for small children, and the need

for policing of the trail are some of the issues raised. Property owners are concerned about trespassing, increase in insurance liability, and an increase in crime that may occur with the operation of the Interim Use Trail.

In a study conducted by the National Park Service and Penn State University concerning landowners' perceptions after three different trails opened, the most commonly reported problems were illegal motor vehicle use on trails, unleashed/roaming pets, noise from trails, cars parked illegally, litter, and loitering. The most frequently occurring problems within one year were dog waste on/near property, cars parked on/near property, noise from trails, loss of privacy, and litter. Problems that were most likely to have increased since opening of a trail were loss of privacy, illegal motor vehicle use, noise from trails, loitering on/near property, and litter (Moore et al., 1992).

The impacts mentioned in the above study are likely to be issues that could occur along the corridor. It is difficult to project the level of impact resulting from the Interim Use Trail. However, it is likely that at least some of these impacts will occur. Potential conflicts between trail users and the need for property owners to be aware of trail users as they cross the trail to access waterfront docks or parking along the right-of-way may result in additional impacts. Issues relating to safety and crime are evaluated in the Utilities and Public Services Section 3.8. Trail user safety is discussed in the Recreation Section 3.11. Transportation safety issues are evaluated in the Transportation Section 3.7.

Land Use Impacts

For the Proposed Action, King County does not require land acquisition and would, therefore, not change future land uses. There would also be no changes needed in existing land uses. Through the federal railbanking process, the federal government could decide at a future date that the corridor should be reverted back to railroad use which would impact adjacent land uses.

The Proposed Action is also considered an interim use and would have a limited period of operation ending no later than 2015. Development of the East Lake Sammamish Trail Master Plan is currently underway. Final trail design could be in the same location as the Proposed Action or on a different alignment. Greatest potential impact would be perceptions by some existing homeowners who feel their existing land use is negatively affected by the introduction of up to 500 trail users per day (See Recreation Section 3.11).

Consistency with GMA and Adopted Plans and Policies. The corridor would be located in the cities of Redmond, Sammamish, and Issaquah, and in a portion of unincorporated King County. All three of these cities and King County have developed comprehensive plans in accordance with the GMA. Policies in all of these comprehensive plans support development of trails. Trails are considered a permitted use under the City of Redmond Comprehensive Plan, City of Sammamish regulations, King County Comprehensive Plan, the City of Issaquah Comprehensive Plan, and applicable zoning. Table 3.6-2 summarizes the consistency of this alternative with applicable plans and policies.

Table 3.6-2. Consistency with Comprehensive Plans, Zoning, and Shoreline Regulations

Jurisdiction	Proposed Action	Alternative 1	Alternative 2
City of Redmond			
- Comprehensive Plan	Proposed corridor is consistent with policies PR-14, PR-51-59, LU-83, TR-39-45, TR-68, CF-16	Same as Proposed Action	Not consistent with plan
- Zoning	Trail is permitted in R-4, R-8, R-12, GC, GC/C, MP, and BP.	Same as Proposed Action	Not applicable
- Shoreline	Trail is allowed in Rural shoreline designation; trail permitted in underlying zoning. Shoreline substantial development permit would be needed.	Same as Proposed Action	Not applicable
City of Sammamish			
- Comprehensive Plan	Proposed trail is consistent with Interim Sammamish Development Code.	Same as Proposed Action	Not consistent with plan
- Zoning	Trail is permitted in R-4.	Same as Proposed Action	Not applicable
- Shoreline	Trail is allowed in Conservancy and Rural shoreline designations; underlying zoning permits a trail. Shoreline substantial development permit would be needed.	Same as Proposed Action	Not applicable
King County			
- Comprehensive Plan	Proposed corridor is consistent with policies PR-103-105, PR-107, PR-201, PR-306, T-515, T-531, T-535, T-537-538, CP-213-214	Same as Proposed Action	Not consistent with plan
- Zoning	Trail permitted in R-4, R-8.	Same as Proposed Action	Not applicable
- Shoreline	Trail is allowed in Rural shoreline designation; underlying zoning permits a trail. Shoreline substantial development permit would be needed.	Same as Proposed Action	Not applicable
City of Issaquah			
- Comprehensive Plan	Proposed corridor is consistent with policies P-8.1, T-2.3 Not consistent with T-2.4.1	Same as Proposed Action	Not consistent with plan
- Zoning	Trail permitted in R, SF-S, PO, MF-H, and I.	Same as Proposed Action	No zoning changes
- Shoreline	Trail is allowed in Conservancy Riparian shoreline designation; underlying zoning permits a trail. Shoreline substantial development permit would be needed.	Same as Proposed Action	Not applicable

A shoreline substantial development permit would be needed for Redmond, Sammamish, Issaquah, and King County because the proposed corridor is within 200 feet of the shoreline in places and the amount of work to be completed would exceed \$2,500 in cost. Due to the corridor's location, it would be subject to shoreline permitting and review requirements in each jurisdiction. The general process for a shoreline substantial development permit is that an application, which includes plans, drawings, and maps of a project and permit fees, is submitted

to a jurisdiction. During a 120-day review period each jurisdiction evaluates the application. After the 120-day review period, a jurisdiction would mail its determination to the Washington State Department of Ecology.

In addition to the shoreline substantial development permit, there would also be other permits that may be required to build the proposed Interim Use Trail.

Cumulative Impacts

Cumulative impacts related to land and shoreline use would be limited to the effects of increasing growth in the project area and vicinity. When considered in combination with the encroaching urbanization of the corridor, the Interim Use Trail would not add significantly to adverse cumulative impacts in the corridor and vicinity.

Alternative 1 Bypass

Construction-related Impacts

Construction-related impacts to land use would be the same as for the Proposed Action with the exception of the bypass ramp construction. This ramp would transition the trail from the railbed to East Lake Sammamish Parkway SE and East Lake Sammamish Place SE. Approximately 1.6 miles of the trail would be located away from the railbed onto East Lake Sammamish Place SE and on East Lake Sammamish Parkway (See Chapter 2 for Alternatives Description). Ramp construction activities would include building a retaining wall, a new culvert over an existing ditch, and vegetation removal. The ramp would be built in the corridor and no property would need to be acquired. Permits would need to be secured for construction within public rights-of-way. Homeowners adjacent to and users of East Lake Sammamish Parkway would experience temporary traffic disruptions while restriping and sign placement occurs. Widening of the shoulder or realigning of the road would not occur. Impacts are not considered significant because the construction duration would be approximately two weeks.

Long-term Impacts

Long-term impacts would be the same as those mentioned for the Proposed Action. The difference between the Proposed Action and Alternative 1 involves locating a portion of the trail on East Lake Sammamish Parkway and East Lake Sammamish Place NE. Homeowners' entering/exiting their property would need to watch for pedestrians and bicyclists in addition to vehicular traffic. The by-pass alternative would result in an increase in East Lake Sammamish Parkway users moving at different speeds. A further discussion of transportation issues is included in Section 3.7.

Land Use Impacts

Perceived land use impacts to homeowners in Segment 5 would likely be reduced because the proposed interim trail corridor would not bisect their properties. The federal railbanking procedures establishes that the corridor would be preserved for potential reopening of rail service. A corridor must be preserved to allow for re-establishment of rail service should the need arise. In the case of the East Lake Sammamish Interim Use Trail, moving the trail from the

corridor to surface streets could demonstrate a lack of intent to preserve the corridor for future rail use (US Court of Federal Claims, 2000). Furthermore, because the bypass alternative would occur on a neighborhood street, 18 homeowners on the east side of East Lake Sammamish Place SE would be impacted by the bypass alternative, where the residences' access and egress is located.

Consistency with GMA and Adopted Plans and Policies. Similar to the Proposed Action, Alternative 1 is consistent with applicable land use plans and policies. Table 3.6-2 summarizes the consistency of this alternative with applicable plans and policies.

Cumulative Impacts

Cumulative impacts related to Alternative 1 would be the same as for the Proposed Action.

Alternative 2 No Action

Construction-related Impacts

Under Alternative 2, the proposed trail would not be constructed. No construction activities related to building of a trail would result from Alternative 2. Construction would occur within one to two years in eight areas along the trail to remove remaining railroad ties and rails. Temporary construction activities would include dust, noise, and construction traffic. It is estimated that construction for all eight areas would be 14 to 20 days. Impacts from construction would not be significant because construction would occur for approximately 2 to 3 days for three of the sites and 4 to 5 days for the other two sites.

Long-term Impacts

As part of the railbanking process, King County would maintain the corridor in the event that the federal government requires the railroad to become operational at a future time. King County would maintain the ditches and culverts that exist along the corridor according to current local, state, and federal regulations. Vegetation would be removed/trimmed along the railbed. The impact to adjacent land use would be consistent with the existing conditions. Later development under the Master Plan may result in the railbed being used as a paved trail.

Consistency with GMA and Adopted Plans and Policies. Not developing the railbed as a trail would not be consistent with applicable land use plans and policies. Each of the cities and King County have policies on trail development that include the proposed corridor. A requirement of the GMA is to provide adequate facilities, such as parks and trails, to meet the demands of future growth. Additional recreational areas within the cities and unincorporated King County would need to be found to accommodate future growth.

Cumulative Impacts

Under the No Action Alternative, the Interim Use Trail would not contribute to cumulative impacts to land and shoreline use in the corridor and vicinity.

MITIGATION MEASURES

Proposed Action

Required Regulatory Requirements

- King County would plan, protect, and construct the Interim Use Trail in accordance with adopted land use plans and policies and implement various resource protection measures. Proposed resource protection measures are described in Chapter 2.
- King County would coordinate with all other state and local agencies regarding permits and approvals required in constructing the Interim Use Trail.

Mitigation by the County

- King County would work closely with affected neighborhoods to minimize land use impacts from construction by notifying businesses and residents of the construction schedule.
- Fences would be placed adjacent to sensitive areas (wetlands and streams), where homes are located close to the trail, and between bisected properties where the trail runs between the home and lake; fencing would not be placed along the entire corridor.
- The temporary staging area for equipment and vehicles would be located away from impacted residences and businesses. Gravel would be deposited by dump truck at intersections, and then hauled by bobcat to the appropriate location. Gravel piles would be adjacent to driveways at both public and private access points. Staging areas would be restored after construction.
- Construction operations would comply with all applicable plans and critical area ordinances.
- Access to all residential areas and commercial businesses in the vicinity of the corridor would be maintained.
- Signage would be used to delineate edge of public use and as needed at beginning of private property.

Alternative 1 Bypass

Mitigation measures would be similar to the Proposed Action. Trail construction on East Lake Sammamish Parkway and East Lake Sammamish Place SE would require additional mitigation measures.

- King County would follow the City of Sammamish's standards for sign placement, restriping, and barrier placement on East Lake Sammamish Parkway and East Lake Sammamish Place SE.

Alternative 2 No Action

- King County would follow maintenance procedures for cleaning and maintaining ditches and culverts outlined in current local, state and federal regulations.
- King County would remove ties and rails under City and County regulations.
- King County would remove vegetation according to City and County regulations.
- King County would coordinate with all other state and local agencies regarding permits and approvals required to remove ties and rails, maintain storm drainage facilities and vegetation, and protect sensitive areas.

SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

Development of a regional trail would result in unavoidable impacts on adjacent land uses. Property owners' privacy would be decreased with interim trail operation, but could be addressed through fencing and landscaping. Although individual property owners may consider these impacts significant, they would not likely be considered significant from a regional perspective.

3.7 TRANSPORTATION

AFFECTED ENVIRONMENT

Traffic

Study Area

The proposed East Lake Sammamish Interim Use Trail is located on the railbed within the East Lake Sammamish railroad right-of-way which is referred to as the corridor west of, and parallel to, East Lake Sammamish Parkway NE/SE. Public streets crossing the proposed Interim Use Trail include NE 70th Street and NE 65th Street in the City of Redmond; SE 33rd Street in the City of Sammamish; and the Lake Sammamish State Park Entrance, SE 51st Street, SE 56th Street, SE 62nd Street, and Gilman Boulevard in the City of Issaquah and unincorporated King County. Public access to the railbed is provided at these public street crossings. State Route (SR) 520, Interstate-90 (I-90), Inglewood Hill Road, Louis Thompson Road, East Lake Sammamish Place, and SE 43rd Road are other key roadways in the study area. The entire East Lake Sammamish Interim Use Trail study area, including major roadways, is shown in Figure 1-1.

Three public parks, two developed and one undeveloped, are located adjacent to the proposed East Lake Sammamish Interim Use Trail. Marymoor Park, a King County regional park, is located at the north end of the trail and bounded by East Lake Sammamish Parkway NE, West Lake Sammamish Parkway NE, and SR-520. Marymoor Park provides a range of public recreation services and has parking and restrooms. Lake Sammamish State Park, located near

the south end of the trail, is bounded by East Lake Sammamish Parkway NE, NW Sammamish Road/SE 56th Street, and Lake Sammamish. Lake Sammamish State Park provides a smaller range of public recreation services compared to Marymoor Park, and also has parking and restrooms. The City of Redmond has purchased waterfront property approximately 0.87 mile south of NE 65th Street for a future park. No specific development plans for this park are available at this time.

Existing Roadway Characteristics

The key roadways in the study area, listed above and shown in Figures 2-1, 2-2, 2-3, 2-4, 2-5, 2-6, 2-7, 2-8, 2-9, and 2-10, or Figures 3-A, 3-B, 3-C, 3-D, 3-E, 3-F, 3-G, 3-H, 3-I, and 3-J (Site Assessment Maps at end of Chapter 3), are described in this section. Existing roadway characteristics are also summarized in Table 3.7-1. Roadway classifications and volumes were obtained from the City of Redmond, King County (for roadways in the City of Sammamish), and the City of Issaquah.

SR-520 is an east-west freeway linking I-5 in Seattle to SR-202 in Redmond. In the project vicinity, SR-520 consists of four general-purpose lanes and has a speed limit of 60 mph. The north terminus of the East Lake Sammamish Interim Use Trail would be located just south of the SR-520/SR-202 interchange eastbound off-ramp.

SR-202 (Redmond-Fall City Road) is a four-lane highway connecting SR-520 in the City of Redmond with SR-203 in Fall City. SR-202 has a speed limit of 45 mph. The Interim Use Trail would be located just west of, and parallel to, SR-202 from SR-520 to East Lake Sammamish Parkway NE.

I-90 is the major east-west freeway for the northern United States. In the project vicinity, I-90 consists of six general-purpose lanes and has a speed limit of 60 mph. The interchanges nearest to the proposed trail are Exit 17 (Front Street) and Exit 15 (SR-900). I-90 passes over the railbed just west of Exit 17.

East Lake Sammamish Parkway is a north-south principal arterial connecting the cities of Redmond and Issaquah, and providing access to both SR-520 and I-90. North of approximately 212th Way, East Lake Sammamish Parkway consists of two travel lanes, shoulders on both sides of the roadway, and a speed limit of 35 mph. South of 212th Way, the roadway widens to four lanes. Between SE 43rd Way and I-90, the number of lanes varies between two and five, the speed limit varies between 25 and 40 mph, and sidewalks exist near some intersections. The Interim Use Trail would parallel East Lake Sammamish Parkway from SR-202 to I-90.

NE 70th Street is a two-lane street located west of SR-202 (Redmond-Fall City Road). NE 70th Street has a speed limit of 25 mph. The NE 70th Street/East Lake Sammamish Parkway intersection is signal-controlled. The Interim Use Trail would intersect with NE 70th Street just west of East Lake Sammamish Parkway.

NE 65th Street, located west of East Lake Sammamish Parkway, is a two-lane roadway with a speed limit of 25 mph. The NE 65th Street/East Lake Sammamish Parkway intersection is signal controlled. The Interim Use Trail would intersect with NE 65th Street just west of East Lake Sammamish Parkway.

Inglewood Hill Road is a two-lane arterial located east of East Lake Sammamish Parkway, with a speed limit of 35 mph. The Inglewood Hill Road/East Lake Sammamish Parkway intersection is signal-controlled. Inglewood Hill Road terminates at this intersection, and therefore does not intersect with the railbed located just west of East Lake Sammamish Parkway.

Louis Thompson Road is a two-lane arterial connecting East Lake Sammamish Parkway with 212th Way and has a speed limit of 35 mph. Louis Thompson Road terminates where it intersects with East Lake Sammamish Parkway, and therefore does not cross the railbed located just west of East Lake Sammamish Parkway.

East Lake Sammamish Place is an unstriped two-lane local access street serving residential uses west of East Lake Sammamish Parkway. The speed limit is posted at 25 mph, and intermittent shoulders and limited sidewalks exist. On-street parking occurs on some portions of this street.

SE 26th Street, located west of East Lake Sammamish Parkway, is an unstriped, two-lane residential street with a speed limit of 25 mph. SE 26th Street intersects the railbed and currently has no shoulders or sidewalks.

SE 33rd Street is a two-lane residential street with no striping, shoulders, or sidewalks. SE 33rd Street intersects with the railbed, just west of East Lake Sammamish Parkway. The posted speed limit is 25 mph.

212th Way SE is a two-lane arterial connecting East Lake Sammamish Parkway SE (at a signalized intersection) to Louis Thompson Road. 212th Way SE terminates where it intersects with East Lake Sammamish Parkway, and therefore does not intersect with the railbed located just west of East Lake Sammamish Parkway. The posted speed limit is 25 mph and no shoulders or sidewalks exist along the roadway.

SE 43rd Street is a three-lane arterial (two lanes eastbound, one lane westbound) with shoulders on the north side and a posted speed limit of 40 mph. SE 43rd Street connects to East Lake Sammamish Parkway at a signalized intersection and continues east to 228th Avenue SE. Because SE 43rd does not continue west of East Lake Sammamish Parkway, no intersection would exist with the Interim Use Trail (located just west of East Lake Sammamish Parkway).

NW Sammamish Road and SE 56th Street are functionally the same road, although the name changes at the East Lake Sammamish Parkway intersection. NW Sammamish Road, which connects East Lake Sammamish Parkway to West Lake Sammamish Parkway, is a four-lane arterial with a speed limit of 35 mph. SE 56th Street, which connects East Lake Sammamish Parkway to 230th Avenue SE, is a three-lane roadway with a posted speed limit of 25 mph. The Interim Use Trail would intersect with NW Sammamish Road just west of East Lake Sammamish Parkway.

SE 62nd Street is a two-lane local street with a speed limit of 25 mph. SE 62nd Street crosses East Lake Sammamish Parkway and the railbed.

Gilman Boulevard, located south of I-90 in the City of Issaquah, is a four-lane roadway with a speed limit of 35 mph. The southern terminus for the Interim Use Trail would be located at

Gilman Boulevard.

Table 3.7-1. Existing Roadway Characteristics

Roadway/Section	Lanes	Classification	ADT ¹	Speed Limit	Sidewalks/Shoulders
SR-520 before SR-202 ramps	4	State route	55,000	60 mph	shoulder both sides
SR-202 (Redmond-Fall City Road) Near SR-520	4	State route	na ²	45 mph	shoulder both sides
I-90 west of Exit 17 ramps	6	Interstate	36,865	60 mph	shoulder both sides
East Lake Sammamish Parkway	2	principal arterial		25 to 40 mph	shoulder both sides
North of NE 70th Street	2	principal arterial	na	35 mph	shoulder both sides
South of NE 70th Street (north of 180th NE)	2	principal arterial	18,800	35 mph	shoulder both sides
North of NE 65th Street	2	principal arterial	na	35 mph	shoulder both sides
South of NE 65th Street	2	principal arterial	18,000	35 mph	shoulder both sides
North of Inglewood Hill Road	2	principal arterial	14,800	35 mph	shoulder both sides
South of Inglewood Hill Road	2	principal arterial	10,200	35 mph	shoulder both sides
North of Louis Thompson Road	2	principal arterial	11,100	35 mph	shoulder both sides
South of Louis Thompson Road	2	principal arterial	9,200	35 mph	shoulder both sides
South of East Lake Sammamish Place	2	principal arterial	na	35 mph	shoulder both sides
South of SE 33rd Street	2	principal arterial	na	35 mph	shoulder both sides
North of SE 43rd Street	2	principal arterial	15,300	25 to 40 mph	shoulder both sides
South of SE 43rd Street	4 to 5	principal arterial	30,300	25 to 40 mph	sidewalk both sides
North of SE 56th Street	4 to 5	principal arterial	31,800	25 to 40 mph	sidewalk both sides
South of SE 56th Street	2 to 3	principal arterial	18,900	25 to 40 mph	shoulder both sides ³
North of Gilman Boulevard	2 to 5	principal arterial	17,600	25 to 40 mph	sidewalk both sides
South of Gilman Boulevard	2 to 4	principal arterial	11,700	25 to 40 mph	sidewalk both sides
NE 70th Street west of East Lake Sammamish Parkway	2	local	5,900	25 mph	sidewalk south side
NE 65th Street west of East Lake Sammamish Parkway	2	local	5,900	25 mph	sidewalk both sides
Inglewood Hill Road east of East Lake Sammamish Parkway	2	arterial	8,300	35 mph	shoulder both sides
Louis Thompson Road east of East Lake Sammamish Parkway	2	arterial	3,050	35 mph	shoulder both sides
East Lake Sammamish Place	2	arterial	na	25 mph	no sidewalk or shoulder
SE 26th Street	2	residential	na	25 mph	no sidewalk or shoulder
SE 33rd Street	2	residential	na	25 mph	no sidewalk or shoulder
212th Way SE northeast of East Lake Sammamish Parkway	2	arterial	4,200	25 mph	no sidewalk or shoulder
SE 43rd Way east of East Lake Sammamish Parkway	3	arterial	14,900	40 mph	shoulder north side
SE 56th Street west of East Lake Sammamish Parkway	3 to 6	arterial	29,100	25 to 40 mph	sidewalk both sides
SE 56th Street east of East Lake Sammamish Parkway	3	arterial	5,500	25 to 40 mph	sidewalk both sides
SE 62nd Street	2	local	na	25 mph	no sidewalk or shoulder
Gilman Boulevard west of East Lake Sammamish Parkway	4	minor arterial	11,200	35 mph	sidewalk both sides
Gilman Boulevard east of East Lake Sammamish Parkway	4	minor arterial	2,500	35 mph	sidewalk south side

¹ADT Average Daily Traffic²na Not Applicable³Sidewalks exist at some intersections in this segment

Traffic Volumes

Average daily traffic (ADT) volumes from 1998 were obtained from the City of Redmond, the City of Issaquah, and King County for the study area roadways. These traffic volumes are shown in Table 3.7-1. Most arterial roadways in the study area are operating at or near capacity. Average daily traffic volumes range from 9,200 vehicles per day (vpd) south of Louis Thompson Road to 31,800 vpd north of SE 56th Street. During peak hours, many intersections at the northern- and southern-most segments of East Lake Sammamish Parkway (near I-90 and SR-520) are operating at or near capacity.

Transit

At the southern end of the corridor, King County Metro transit routes 200, 215, and 269 stop adjacent to SE 56th Street, all within 200 feet of the railbed. At the northern end, routes 269 and 922 stop on SR-202 less than 0.25 mile from the railbed. Routes 200, 209, 214, and 215 stop on Gilman Boulevard in Issaquah. Route 269 is the only bus route servicing East Lake Sammamish Parkway within the study area, and makes only one stop in both directions at the SE 56th Street/East Lake Sammamish Parkway SE intersection.

Non-Motorized Facilities

Roadway shoulders ranging from 5 to 8 feet wide exist on both sides of East Lake Sammamish Parkway. These shoulders are used for bicycle and pedestrian travel, as well as parking in some areas. Sidewalks are provided for pedestrians only between SE 43rd Way and NW Sammamish Road/SE 56th Street, and north and south of the Gilman Boulevard/East Lake Sammamish Parkway intersection. Other than the on-street bicycle lane on SE 56th, no additional marked pedestrian or bicycle facilities are provided along roadways in the study area.

An existing pedestrian soft-surface trail connection exists between the railbed and Marymoor Park's east entrance on the north side of NE 65th Street. Pickering Trail is an 8 foot-wide asphalt trail extending from the multiple-use trail paralleling SE 56th Street to the railbed south of the foot bridge over Issaquah Creek.

Vehicle Access

Vehicle access to the railbed is prohibited. In some residential areas, vehicles were observed to be parked in the railbed, particularly in areas where boundaries between the railbed and residential access driveways are not clearly delineated.

Parking

Existing public parking in the study area is available at Marymoor Park, Lake Sammamish State Park, along NE 65th Street and on the roadway shoulder along the East Lake Sammamish Parkway. If necessary, a shared parking facility for trail users may be available at an existing office park on SE 51st Street or at the Issaquah District Court located on 220th Avenue SE (north of SE 56th Street).

Marymoor Park has 641 paved parking spaces and 1,351 unpaved parking spaces available year-round. Except during the winter months, the Park also contains 600 additional spaces. Peak usage for these parking lots occurs during the spring/summer season on weekend days. Some parking is available year round. However, during summer special events such as the annual Heritage Festival and WOMAD music festival, fees may be charged for parking.

Lake Sammamish State Park has approximately 2,300 regular parking spaces near the picnic/swimming area available for trail users, and 250 boat/trailer parking spaces for boat/trailer use only. The boat/trailer parking area is frequently at capacity on spring/summer weekend days.

Thirty-four parking spaces are available along NE 65th Street. Parking is permitted only on the south side of the street, on-street parking is also available on both sides of NE 70th Street. Shoulder parking is permitted on both sides of East Lake Sammamish Parkway NE/SE from NE 65th Street to SE 43rd Street, but increased parking along the parkway would create additional safety hazards and invite use of private roads to access the trail.

The parking lot associated with the office park, leased by Microsoft, has approximately 1,000 parking spaces. The Issaquah District Court has approximately 80 parking spaces. If a shared parking agreement is established, these locations could provide trail users weekend use.

Railbed Crossings

As previously mentioned, seven public roads cross the railbed. In addition, approximately 52 private driveways serving more than five private properties, and approximately 81 residential paths are located along the railbed. The residential paths provide property owners access to East Lake Sammamish Parkway, private residences, beaches, and parking areas.

Sight distance was examined for all roadways and private driveways crossing the trail corridor to determine locations where vegetation or terrain obstructs a driver's view of the railbed. Stop signs exist at many driveway crossings of the railbed, due to poor sight distance. Of the estimated 52 driveways and seven public roads that cross the railbed corridor, approximately 39 have sight distance deficiencies for at least one corner of the intersection. Of the estimated 43 driveways and roadways that intersect with affected areas of East Lake Sammamish Parkway and East Lake Sammamish Place, approximately 22 have sight distance concerns. An inventory of potential sight distance concerns at these driveway and roadway crossing locations can be found in the Trail Intersections Appendix. Sight distance limitations located at many driveways along East Lake Sammamish Parkway are documented in the *East Lake Sammamish Parkway Design Assessment Report* (Parsons Brinkerhoff, 1998).

Existing Accidents

Accident records for East Lake Sammamish Parkway were reviewed for the most recent five-year period available in each jurisdiction, with the exception of Issaquah, where only the last three years were available. Accident records include vehicle, pedestrian, and bicycle accidents. In the City of Redmond, accident records were available for the period between September 1, 1994, and August 31, 1998. King County provided information for the area in the recently incorporated City of Sammamish, as well as unincorporated King County, for the years 1992 to 1996. The City of Issaquah provided accident information for the period between October 12, 1997, and November 11, 1999. Accident rates and accident severity (property damage only,

personal injury, fatality) were reviewed for all locations in which accident data were available. The results of this analysis are shown in Table 3.7-2 for the City of Redmond and Table 3.7-3 for the City of Sammamish. Detailed accident descriptions were not provided for the single intersection in Issaquah.

As shown in Table 3.7-2, the highest number of accidents in Redmond occurred at the Redmond-Fall City Road intersection. This intersection serves the highest traffic volume in this segment of East Lake Sammamish Parkway. Very few accidents were recorded in other areas of East Lake Sammamish Parkway within the City of Redmond. No fatalities or accidents involving pedestrians or bicycles were recorded in this segment.

As shown in Table 3.7-3, the highest accident rates in Sammamish and King County were reported at the Issaquah/Fall City Road, NE Inglewood Hill Road, and SE 56th Street intersections. These intersections also serve the highest traffic volumes within this segment of East Lake Sammamish Parkway. Accidents involving a pedestrian or bicycle were also observed at the NE 18th Place, SE 56th Street, and Issaquah/Fall City Road intersections; however, only one of these accidents was observed at each of these locations during the five-year period surveyed. No fatalities were recorded within this segment of East Lake Sammamish Parkway between the years 1992 and 1996.

Accidents recorded for the NW Gilman Boulevard/Front Street N intersection in Issaquah for the period between September 12, 1997, and November 11, 1999 show three accidents in 1997, 15 accidents in 1998, and 18 accidents in 1999. During this time period, none of the recorded accidents involved bicycles or pedestrians, and no fatalities were recorded for this intersection.

Table 3.7-2. East Lake Sammamish Parkway 5-Year Accident History in the City of Redmond.

Location	Year 1 (9/1/94- 8/31/95)			Year 2 (9/1/95- 8/31/96)			Year 3 (9/1/96- 8/31/97)			Year 4 (9/1/97- 8/31/98)			Year 5 (9/1/98- 8/31/98)			5-Year Avg.
	PDO	I	F	PDO	I	F	PDO	I	F	PDO	I	F	PDO	I	F	
Redmond-Fall City Road Intersection	10	7	0	18	5	0	10	8	0	8	1	0	8	2	0	15.4
South of Redmond-Fall City Road	0	0	0	0	0	0	1	0	0	2	1	0	0	0	0	0.8
North of NE 65th Street	2	2	0	2	1	0	0	0	0	1	0	0	0	0	0	1.6
NE 65th Street Intersection	5	0	0	5	2	0	2	0	0	1	0	0	0	0	0	3
South of NE 65th Street Intersection	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0.6
North of 187th Avenue NE	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0.6
187th Avenue NE Intersection	2	0	0	1	0	0	3	0	0	1	0	0	0	0	0	1.4
South of 187th Avenue NE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Source: City of Redmond Traffic Engineering Department (1999)

PDO = Property damage only

I = Personal injuries

F = Fatalities

Table 3.7-3. East Lake Sammamish Parkway 5-Year Accident History in the City of Sammamish and Unincorporated King County.

Location	Year 1 (1992)			Year 2 (1993)			Year 3 (1994)			Year 4 (1995)			Year 5 (1996)			5-Year Avg.
	PDO	I	F	PDO	I	F	PDO	I	F	PDO	I	F	PDO	I	F	
At NE 49th Place	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0.4
At 196th Avenue NE	1	3	0	0	1	0	0	1	0	2	0	0	3	7	0	3.6
At E. Lake Sammamish Shore Lane NE	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0.4
At NE 33rd Place	2	1	0	1	1	0	0	0	0	0	0	0	0	0	0	1
At NE 30th Court	1	1	0	0	0	0	1	0	0	0	2	0	0	0	0	1
At NE 18th Place	0	3 ^a	0	0	1	0	1	4	0	2	1	0	3	2	0	3.4
At NE 16th Street	0	2	0	1	1	0	2	1	0	1	2	0	0	2	0	2.4
At NE Inglewood Hill Road	5	4	0	7	6	0	3	5	0	5	6	0	3	5	0	9.8
At NE 7th Court	0	1	0	1	1	0	0	0	0	0	0	0	0	2	0	1
At Louis Thompson Road	0	1	0	0	1	0	1	1	0	3	0	0	0	0	0	1.4
At E. Lake Sammamish Park S.	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0.2
At East Lake Sammamish Parkway	1	1	0	1	1	0	0	1	0	0	0	0	0	0	0	1
At East Lake Sammamish Shore Lane NE	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0.4
At SE 16th Street	0	0	0	1	0	0	2	0	0	0	1	0	0	0	0	0.8
At E. Lake Sammamish Place SE	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0.2
At SE 22nd Place	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0.6
At SE 24th Way	1	0	0	0	1	0	0	0	0	2	4	0	2	0	0	2
At SE 26th Street	0	0	0	1	2	0	2	1	0	0	0	0	0	1	1	1.6
At SE 32nd Street	1	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0.8
At SE 33rd Street	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2
At SE 39th Street	1	0	0	0	1	0	1	0	0	1	1	0	0	0	0	1
At 205th Avenue SE	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4
At 206th Avenue SE	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0.4
At 212th Way SE	1	0	0	1	1	0	0	2	0	2	1	0	0	0	0	1.6
At E. Lake Sammamish Shore SE	0	0	0	1	0	0	1	0	0	1	1	0	0	0	0	0.8
At Peregrine Point Way SE	3	0	0	0	0	0	0	1	0	1	2	0	0	0	0	1.4
At SE 43rd Way	2	0	0	1	3	0	2	5	0	3	3	0	8	3	0	6
At SE 51st Street	0	0	0	0	1	0	1	0	0	0	3	0	0	0	0	1
At SE 51st Place	1	1	0	1	2	0	2	1	0	1	1	0	0	2	0	2.4
At SE 56th Street	4	1	0	0	2	0	4	2	0	4	6 ^b	0	7	9	0	7.8
At SE 62nd Street	2	0	0	0	3	0	0	2	0	3	3	0	3	3	0	3.8
At Issaquah/Fall City Road	4	3	0	13	5	0	15	3	0	34	12	0	21	7	0	23.4
At 228th Avenue SE	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0.4
At 229th Avenue SE	1	1	0	2	1	0	1	3	0	2	1	0	1	1	0	2.8

Source: King County Department of Public Works (1999)

PDO = Property damage only

I = Personal injuries

F = Fatalities

^aAn accident involving a bicycle was observed at this location.

^bAn accident involving a pedestrian was observed at this location.

IMPACTS

Proposed Action

Construction-related Impacts

Approximately 7,000 cubic yards (cy) of gravel would be placed along the entire length of the railbed. Under the Proposed Action, approximately 1,428 one-way truck trips (714 in/714 out) would be generated for hauling the gravel to the railbed. These trips would be spread out over a 2 to 3 month period, resulting in an average of approximately 28 truck trips per day assuming no hauling on weekends. Trucks would access the project corridor from public streets, and the staging area for the placement of the gravel would take place on the railroad to minimize impacts to adjacent private property. Therefore, traffic flow and public access would not be disrupted. The assumed duration for the installment of gravel for the entire trail is two to three months. Therefore, the impacts related to truck traffic are not expected to be significant.

Long-term Impacts

Once completed, the Proposed Action would generate an estimated 200 one-way daily vehicle trips on a peak summer weekend day. These vehicle trips are based on the estimated number of trail users, which represents approximately 10 to 20 percent of current daily totals on paved regional trails such as the Burke-Gilman Trail. The lack of a paved surface would limit possible use by strollers, road bicycles, in-line skaters, and most families, leaving primarily walkers and mountain bicyclists as the typical Interim Use Trail users. This estimate is based on an assumed daily trail user volume of 500, with half of the users driving to the trail from outside the immediate area. With an assumed average vehicle occupancy of two, the 250 trail users would generate 125 round-trips or 250 one-way daily vehicle trips. Based on studies conducted for the Burke-Gilman Trail in 1995, weekend peak volumes typically occur during the midday hours and taper off in the evening. Of the hours surveyed (7:00 A.M. to 7:00 P.M.), approximately 12 to 15 percent of the total daily volume occurred during the peak hour (2-3 PM) on a typical weekend day. Assuming that this would also be true for the East Lake Sammamish Interim Use Trail, approximately 30 to 38 one-way vehicle trips would be expected during the peak hour. This amount of traffic would not have a significant impact on roadway congestion or roadway operations, particularly because these trips would be spread out over the entire length of East Lake Sammamish Parkway NE/SE.

Parking

Based on projected trip generation estimates, as previously described, a daily parking demand of up to 125 vehicles could be expected on a summer weekend day. Assuming that an average Interim Use Trail user would remain on-site for three hours, parking demand during the peak midday period could range between 38 to 75 vehicles at any given time. Most of these vehicles would park at Marymoor Park, Lake Sammamish State Park (near the picnic/swimming area), Issaquah District Court on NE 70th Street, or on NE 65th Street. These locations would have sufficient parking available to accommodate the peak parking demand generated from interim

use of the railbed. Five to 10 days out of the year when Marymoor Park hosts large events, parking demand could increase and trail users would be required to pay a nominal fee at the Park.

Trail users will be discouraged from parking on the shoulders of East Lake Sammamish Parkway because there are few public access points to the trail and parking on the parkway would encourage illegal access in some areas.

Railbed Crossings

The project would increase the potential for conflicts between trail users and vehicles at railbed intersections with roadways and driveways. Due to the close proximity of the railbed to residential driveways and East Lake Sammamish Parkway in many locations, sight distance would be limited for vehicles as well as for pedestrians and bicycles using the trail.

Few standards are available for assessing adequate sight distance at trail-roadway intersections. However, sight distance is a principal element of roadway and path intersection design. Stopping sight distance, which is the distance required for a vehicle or bicycle to react to the unexpected, is most important at intersection locations where stop or yield signs will not be present. Based on the *Guide for the Development of Bicycle Facilities* (AASHTO, 1999), a 75-foot minimum stopping sight distance would be required for a bicycle traveling at a speed of 12 mph. For vehicles traveling at 20 mph, 125 feet of stopping sight distance would be required, based on A *Policy on Geometric Design of Highways and Streets* (AASHTO, 1994).

Washington State Department of Transportation's (WSDOT's) *Design Manual* (1997) also provides a method for determining the minimum required sight distance for motor vehicles approaching intersections. Based on WSDOT's methodology, drivers of vehicles approaching from a distance 10 feet away from a trail crossing should be able to see a trail user approaching from a distance 160 feet away from the trail crossing. These sight distance criteria would apply in locations where vehicles would be required to yield to trail users. If sight distances do not meet this criteria, motor vehicles would be required to stop.

At locations where the roadway is given the right-of-way and trail users are required to stop, sufficient crossing maneuver sight distance should be provided. Crossing sight distance is the distance required for a pedestrian or bicyclist to make a safe crossing maneuver after coming to a complete stop. Based on *Trail Intersection Design Guidelines* (North Carolina Highway Safety Research Center, 1996), a crossing sight distance of approximately 341 feet would be required for pedestrians crossing a 16-foot roadway with on-coming vehicular traffic travelling at 30 mph. A crossing sight distance of approximately 295 feet would be required for bicyclists crossing under similar conditions. Due to the sharp turns, steep grades and narrow widths of some residential driveways and the close proximity of homes to the railbed corridor, vehicles approaching most of the East Lake Sammamish Interim Use Trail intersections would be travelling at considerably lower speeds. Bicycles would also likely travel on the gravel trail at speeds 25 percent lower than on a paved trail. Therefore, pedestrian and bicycle crossing sight distance requirements would be expected to be lower for the Interim Use Trail.

Sight distance surveys were conducted along the entire length of the East Lake Sammamish Interim Use Trail corridor to identify the locations where sight distance concerns exist. For the most part, sight distance deficiencies were identified based on information provided in the published guidelines mentioned above. However, since less than 100 feet of roadway or driveway would be available on either side of the Interim Use Trail corridor in many cases, some professional judgment was required to identify sight distance deficiencies. The Trail Intersections Appendix lists all impacted driveways and roadways, and identifies the locations where sight distance concerns exist.

Based on the surveys, sight distance limitations exist at approximately 39 of the estimated 52 total railbed driveway crossings. Without improvements, there is a greater potential for accidents to occur at intersections with sight distance deficiencies. The Proposed Action includes the installation of informational and regulatory signs for trail users and road-based vehicles. In locations where trail users would have the right-of-way, yield signs for vehicles would be placed at railbed crossings without major sight distance concerns. Stop signs for vehicles and/or vegetation management have been recommended for vehicles at railbed crossings where sight distance deficiencies exist. In locations where vehicles have right-of-way, trail users would be required to stop. Figures 3.7-1, 3.7-2, 3.7-3, 3.7-4, and 3.7-5 show five potential trail signing plans that would be implemented for improving vehicular and non-motorized safety, depending on available sight distance and traffic volumes at each crossing location.

The entire length of the railbed is separated from East Lake Sammamish Parkway, minimizing potential conflicts between trail users and vehicles, compared to Alternatives 1 and 2.

Public Service Vehicle Access

Bollards would be installed at all trail/roadway crossings. The placement of removable bollards would provide access for maintenance and emergency vehicles, but block the trail from use by other motor vehicles. According to staff from King County Parks and Recreation, maintenance of the East Lake Sammamish Interim Use Trail would be similar to that of the Snoqualmie Valley Trail. In the winter months, county staff estimates maintenance inspections would occur twice per month, and actual maintenance two to four times per month. In the growing season (March through October) maintenance inspections would be similar, and maintenance activities would occur six to twelve times per month. Access for all public service vehicles would be via public streets.

Cumulative Impacts

The City of Redmond has purchased Lake Sammamish waterfront properties that they plan to develop into a park. Parking will not be located on site. Entrance to this park will be by access roads or by the proposed trail, when open. Specific plans and timing for development have not yet been determined for this property.

All projects listed below are within the City of Issaquah's annexation area; however, they are currently under King County's jurisdiction:

Along SE 56th Street (between Lake Sammamish State Park and the BNSF railbed), two projects involving the construction of a Microsoft building and the new Issaquah District Court are complete.

- Near Pickering Place, Costco has plans to expand the facility by at least 100,000 square feet.
- East of the East Lake Sammamish Parkway, north of I-90, a new commercial development will include a Fred Meyer, Home Depot, and other commercial buildings.
- Just south of the Overdale Park Neighborhood (a single-family residential neighborhood), a planned development will include apartments and condominiums (totaling 600 units).

The City of Issaquah anticipates the development of a hotel (with approximately 100 rooms), a post office, and two commercial buildings, within 2 years.

None of the projects described above will be adversely affected by, or adversely affect, the construction of the trail. All of the projects mentioned above would be required to provide parking for their patrons. All of the projects would increase traffic volumes on roadways in the project area and could increase trail use.

Alternative 1 Bypass

Construction-related Impacts

The Bypass Alternative includes all of the construction and maintenance/operation actions noted for the Proposed Action, but would also require several additional actions to allow for the construction of the proposed Bypass route. Alternative 1 would require the re-striping of East Lake Sammamish Place, and provide an 8-foot area for pedestrians and bicycles and a 12-foot one-way travel lane. These improvements would not create significant impacts, since the construction duration would only be 1 to 2 weeks.

Compared to the Proposed Action, Alternative 1 would result in a decrease in truck trips hauling gravel to the railbed, since approximately 1.6 miles of the trail would be moved from the railbed to East Lake Sammamish Parkway and East Lake Sammamish Place. Approximately 6,000 cy of gravel would be placed along the portions of the railbed used for Alternative 1. This would generate approximately 1,216 one-way truck trips (608 in/608 out over a two to three month period or approximately 24 trips per day). This decrease in truck traffic, as compared to the Proposed Action, would be offset by an increase in truck trips related to construction of East Lake Sammamish Parkway Bypass. The construction of the Bypass Alternative on East Lake Sammamish Parkway would add up to 2 additional weeks to the 2 to 3 months of construction needed for the Proposed Action. Safety measures discussed in the Proposed Action would also apply to Alternative 1. In addition, there could be some short-term temporary lane closures requiring flaggers on East Lake Sammamish Parkway.

Long-term Impacts

Long-term impacts for Alternative 1 would be similar to the Proposed Action, except where the alignment is located on the west side of East Lake Sammamish Parkway and East Lake Sammamish Place SE. On East Lake Sammamish Place SE, trail use would require a conversion from a two-way to a one-way street in the northbound direction. The conversion to a one-way street would include a 12-foot travel lane and 8-foot striped pedestrian/bicycle path on the west side of the street. The curb radius for the southbound right turn movement would also need to be increased to allow vehicles to negotiate this turn without encroaching on the pedestrian/bicycle trail. Trail user safety would be lower along the bypass section because of the reduced separation between vehicles and trail users. Safety risks would be highest during peak traffic periods and/or periods of reduced visibility. Refer to the Recreation Section 3.11 for additional discussion.

Parking

Parking demand and other parking impacts associated with this alternative would be similar to those described for the Proposed Action, except in the vicinity of the 1.6 mile railbed bypass area. Where the Bypass is located on East Lake Sammamish Parkway, on-street parking would be prohibited on the west side of the street.

This alternative could encourage greater use of the East Lake Sammamish Parkway shoulders north and south of the railbed bypass area, since increased trail access opportunities would exist in this area. This increase in parking on the shoulders would impact existing bicycle travel and could restrict sight distance at driveways.

Trail Crossings

For portions of this alternative that are on the railbed, impacts would be the same as discussed for the Proposed Action.

Moving a portion of the trail onto East Lake Sammamish Parkway would have an impact on traffic operations. Travel speeds for vehicles turning from East Lake Sammamish Parkway across the trail would need to be much slower than for the Proposed Action, which could result in a higher risk of rear-end accidents where the trail is re-routed onto East Lake Sammamish Parkway. No vehicle stacking space is available for southbound right and northbound left turning vehicles on East Lake Sammamish Parkway to pull out from through-traffic lanes. In addition, it is less safe to decrease the separation distance between the parallel roadway (East Lake Sammamish Parkway) and the trail.

Sight distance deficiencies for the portions of the Bypass Alternative on East Lake Sammamish Parkway were identified based on information in the *East Lake Sammamish Parkway Design Assessment Report* (Parsons Brinckerhoff, 1998). For the portion of the Bypass Alternative on East Lake Sammamish Place, surveys were conducted to identify sight distance concerns. The Trail Intersections Appendix lists the driveways and roadways along East Lake Sammamish Parkway and East Lake Sammamish Place that would be impacted by the Bypass Alternative, and identifies the locations where sight distance concerns exist. As shown in the Trail Intersections Appendix, sight distance limitations exist at approximately 22 of the estimated 43 trail/driveway intersections on East Lake Sammamish Parkway and East Lake Sammamish

Place. In addition to these locations, approximately 35 out of 45 railbed/driveway crossings, associated with Alternative 1 and portions of the Proposed Action, have slight distance deficiencies. Vegetation management and/or other improvements would minimize or eliminate some of the sight distance deficiencies.

Public Service Vehicle Access

Vehicle use of the trail would be limited to service and maintenance vehicles only. Frequency and access are the same as discussed in the Proposed Action.

Cumulative Impacts

Cumulative impacts affecting Alternative 1 are the same as specified in the Proposed Action.

Alternative 2 No Action

Construction-related Impacts

The No Action Alternative does not require any interim use construction. However, some maintenance and operations functions would occur. According to the King County Parks and Recreation Department, current maintenance involves inspections in response to public contacts and complaints, and when weather conditions may result in acute drainage issues. Inspections around the immediate area would continue to occur for existing problems such as hazard trees, brushing, and ditch and culvert cleaning.

Long-term Impacts

Pedestrians and bicyclists would continue to use the East Lake Sammamish Parkway shoulders under this alternative. This alternative would be less safe than the other alternatives, because pedestrians and bicyclists on the shoulders would not be separated from vehicle travel lanes.

Cumulative Impacts

Trail construction would not be implemented in the No Action Alternative, resulting in no cumulative impacts. Culvert and ditch maintenance would continue pursuant to controlling regulations.

MITIGATION

Traffic

The Proposed Action and Alternative 2 (No Action) would not require any new roads or streets, or improvements to existing roads or streets. As discussed previously, Alternative 1 (Bypass

Alternative) would require several actions to allow for the construction of the proposed Bypass route.

For both the Proposed Action and Alternative 1, some standard construction safety measures can be taken, such as installation of advanced warning signs, highly visible construction barriers, and the use of flaggers. In addition, a public information program regarding hours of construction or parking impacts could be instituted.

Parking

Signs would need to be appropriately placed to prevent trail users from parking in private or restricted parking lots located near the trail access points. In addition, parking on East Lake Sammamish Parkway shoulders could be prohibited in certain areas where sight distance is impacted for vehicles entering the parkway, or if illegal access to the railbed occurs across private driveways.

If parking supply becomes an issue in the future, shared parking opportunities for Interim Use Trail users may exist at the Issaquah District Court or office park on SE 51st Street. At the office park location, the park owners/managers have been contacted to discuss the possibility of allowing some weekend and evening parking facility use. If a shared parking agreement is established at this location, King County Park System would work with the office park owner/manager to install signs and develop an ongoing monitoring and enforcement program.

Railbed Driveway Crossings

Bollards would be installed along the railbed corridor for the Proposed Action and portions of Alternative 1 on the railbed at all trail/roadway crossings as indicated on the development plan. Informational and regulatory signs would also be installed at all such crossings for trail users and road-based vehicles. The Trail Intersections Appendix identifies locations where sight distance improvements are needed, and provides signing recommendations for each individual driveway or roadway crossing. In general, vegetation growth should be monitored and managed near all trail crossings to maximize sight distances for trail users and vehicles. Guard rails should also be used to delineate the trail edge where the railbed directly parallels and is connected to driveways. In addition, accident records would be monitored, and problem areas addressed.

For the section of the trail that would be re-routed onto East Lake Sammamish Parkway with Alternative 1, King County would work with the City of Sammamish to install warning signs, painted lane striping, or other improvements to protect trail users from vehicular traffic. If physical safety barriers are installed, it would not be feasible to place them within 150 to 300 feet of driveways due to sight distance concerns. This would result in gaps in the safety barriers where trail users would be unprotected from vehicle traffic. Trail users with their backs to turning vehicles are even more susceptible to unexpected conflict. Between the south end of East Lake Sammamish Place SE and SE 33rd Street, the majority of East Lake Sammamish Parkway would not allow for safety barriers between vehicular and non-motorized traffic, due to the frequency of driveways and width of the existing shoulders. This type of unprotected facility is not recommended under local and state regulations.

Placing safety barriers two feet west of the southbound travel lane would also narrow the existing space available for high speed cyclists (assuming cyclists are located between the barriers and vehicle travel lane), and therefore, be less safe. Alternatively, if high speed cyclists are traveling on the west side of the barrier, potential conflicts exist with other types of trail users (pedestrians and lower speed cyclists).

Vehicle Access

As described above, bollards will be installed at all railbed crossings. The placement of removable bollards would provide access for use by maintenance and emergency vehicles, but block the trail from use by other motor vehicles.

Construction

All truck traffic would be required to use public roads to access the railbed corridor.

SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

No significant unavoidable adverse impacts would occur. Anticipated impacts would be largely eliminated or reduced by proposed mitigation measures.

3.8 UTILITIES AND PUBLIC SERVICES

This section focuses on issues pertinent to utilities and public services (i.e., police, fire/medic, ambulance) that serve the residences along the corridor. Numerous sources were utilized to evaluate these topics including personal telephone interviews, Internet research, library research, and personal visits to municipalities. This section describes the affected environment and impacts associated with utilities in the vicinity of the proposed East Lake Sammamish Interim Use Trail. Following the utilities discussion, the affected environment and impacts associated with public services are discussed. Potential public safety issues are described as well. The section ends with a discussion of possible mitigation measures related to impacts for both utilities and public services.

AFFECTED ENVIRONMENT

Utilities

Typical of its urbanized character, numerous utilities are located in the vicinity of the corridor. Following is a summary of currently-identified utilities within or adjacent to the corridor. Attempts were made to contact all identified utilities and determine their locations within and/or across the corridor. Additional site-specific investigation would be needed prior to any construction. Tables 3.8-1 through 3.8-4 discuss the utilities present along the corridor in each

jurisdiction. Because the project would not affect utility levels of service, only the locations of utilities are documented below.

Table 3.8-1
Utilities in Redmond Along or Crossing the Corridor

Utility Name	Service Provided	Locations/Crossings
GTE Telephone	telephone	Three buried crossings and numerous aerial crossings exist along the corridor.
Redmond Water	water	Water lines cross the corridor at NE 65th St. and NE 70th St.
Redmond Sewer	local sewer collection and conveyance	Sewer line crosses the corridor at NE 65th St.
King County Sewer	regional and local sewer collection and conveyance	Sewer line crosses the corridor just north of NE 65th St.; no crossings near southern border.
Puget Sound Energy	electricity, natural gas	Numerous crossings of the corridor exist to serve individual homes.

Table 3.8-2
Utilities in Sammamish Along or Crossing the Corridor

Utility Name	Service Provided	Locations/Crossings
Northeast Sammamish Sewer and Water District	local sewer collection and conveyance and water supply	The District is responsible for the lines in East Lake Sammamish Pkwy only. Numerous "spaghetti lines" to private residences exist along the corridor.
Sammamish Plateau Water and Sewer District	local sewer collection and conveyance and water supply	Numerous crossings of the corridor exist to serve individual homes.
Puget Sound Energy	electricity, natural gas	Numerous crossings of the corridor exist to serve individual homes.

Table 3.8-3
Utilities in Issaquah Along or Crossing the Corridor

Utility Name	Service Provided	Locations/Crossings
Issaquah Public Works	storm drainage collection and conveyance; local sewage collection and conveyance; and water supply	Storm drainage pipes exist at the northwest intersection of East Lake Sammamish Parkway SE and SE 56th St. A short length of stormwater pipeline also runs parallel to the corridor where it intersects with NE Gilman Blvd. (see surface water section 3.2 for further discussion). A sewer line is located within East Lake Sammamish Parkway SE right-of-way north of 56th St.; at 56th St. it turns west and intersects the corridor. Sewer lines also intersect the corridor where it intersects with NE Gilman Blvd. No water supply lines fall within or across the corridor.
US West	telephone	Main cable is in East Lake Sammamish Parkway SE; service area runs from Issaquah to SE 16th in Sammamish. There are a substantial number of corridor crossings; most are buried, some are overhead. Major crossings are SE 51st, SE 56th, SE 62nd, and Gilman Blvd.
Puget Sound Energy	electricity, natural gas	Numerous crossings of the corridor exist to serve individual homes.

Table 3.8-4
Utilities in King County Along or Crossing the Corridor

Utility Name	Service Provided	Locations/Crossings
Puget Sound Energy	electricity, natural gas	Numerous crossings of the corridor exist to serve individual homes.
US West	telephone	See description in Issaquah section above.

Public Services

Existing police, fire/medic, and other emergency services provided in the East Lake Sammamish area jurisdictions are summarized in Tables 3.8-5 and 3.8-6 below. Each table discusses the available facilities, typical response times, and number of personnel.

Table 3.8-5
Police Departments Serving the Corridor Vicinity

Jurisdiction	Approximate Response Times	Personnel
Redmond	Emergency calls: 5.3 minutes Urgent calls: 18.75 minutes Non-emergency calls: 40.75 minutes	75 police officers
Sammamish / King County	911 dispatch: 12.02 minutes Critical dispatch: 2.74 minutes Immediate dispatch: 9.08 minutes Prompt dispatch: 17.27 minutes Routine dispatch: 36.80 minutes	14 police officers (small King County section would likely be served by Sammamish police for emergency calls)
Issaquah	Emergency calls: within 3 minutes Urgent calls: under 10 minutes Non-emergency calls: within 20 minutes	20 police officers

¹ Uncategorized data were examined and broken down into categories similar to other jurisdictions for comparison purposes; response times are approximate.

The proposed East Lake Sammamish Interim Use Trail would be served by the Redmond Fire Department at the north end and Eastside Fire and Rescue from the City of Sammamish north border to Issaquah. The stations most likely to respond to a fire or medical emergency are:

- Fire Station #16, 185th Ave. NE and NE 67th St. (Redmond Fire Dept.)
- Fire Station #221, 212th Ave. and SE 20th St. (Eastside Fire and Rescue)
- Fire Station #223, 232nd Ave. NE (Eastside Fire and Rescue)
- Fire Station #72, 175 Newport Way NW (Eastside Fire and Rescue)

All stations are dispatched from the same dispatch center; the dispatch center decides which station is closest and available, and dispatches the appropriate station. In the case of a medical emergency, fire department aid cars would respond first. A private ambulance may later be requested depending upon the situation, the wishes of the injured party, or if additional patient transportation is required. Paramedic units are also available to respond to medical emergencies along the corridor. These units are located at Fire Station #11 in Redmond at 8450 - 161st Avenue NE (Evergreen Medic unit 19) and at Fire Station #72 in Issaquah (part-time Bellevue Fire Department unit) (Altenburg, personal telephone communication, 2000; Carolan, personal telephone communication, 2000). Fire/medic services are summarized in Table 3.8-6.

Table 3.8-6
Fire Departments/Medic Services Serving the Corridor Vicinity

Jurisdiction	Response Times	Personnel
Redmond	5 to 9 minutes	97 uniformed personnel
Sammamish	4 to 6 minutes	4 stations serve Sammamish, King County, and Issaquah
King County	4 to 6 minutes	
Issaquah	4 to 6 minutes	

Fire and medical emergency vehicles would access the Interim Use Trail via a cross street or private access road. If the injured person(s) could not be reached by vehicle, the emergency personnel would get to the incident location on foot. Where terrain is too unstable or an injury too serious, the medical transport helicopter from Harborview would be used (Altenburg, personal telephone communication, 2000).

Public Safety Issues

Numerous comments related to public safety issues were received during the public scoping process. Because the proposed East Lake Sammamish Interim Use Trail is a new trail, the discussion of public safety issues in this EIS relies on existing information from other trails. The vast majority of information about crime and safety on rail-trails in the United States is anecdotal in nature and not supported by robust statistical evidence. However, anecdotal stories and reports do present a picture of the problems that can and do occur on trails and provide guidance for trail developers who wish to mitigate potential issues.

Major Concerns Regarding Trail Safety and Security

The major trail safety concerns were identified from public comments in the *East Lake Sammamish Trail Interim Use and Resource Protection Plan, Appendix E: Public Record* (King County, 1999) as well as from various public scoping meetings. In addition, existing literature on trails and other sources were consulted to assess trends in safety and security concerns on previously established trails. The major concerns are listed below.

Personal property

- Robberies in homes and other structures on private property
- Vandalism of homes or private property
- Trespassing on private property

Personal injury

- Accidents on trail between users
- Accidents between trail users and residents who are crossing the corridor
- Injuries to trail users at driveway intersections
- Injuries to trail users who wander onto private property

Violent personal crimes

- Murder
- Rape
- Assault and battery
- Robbery

Increased potential for crime along the proposed trail corridor is a major concern for many area residents. To characterize this potential, existing crime data in the region are provided, followed by crimes reported in jurisdictions along the corridor and other areas with a trail. Crime data are summarized in Tables 3.8-7, 3.8-8, and 3.8-9.

Table 3.8-7
Total Crimes¹ for East Lake Sammamish Trail Corridor Jurisdictions

Crime	Redmond (total / rate per 1,000)	Unincorporated King County (includes City of Sammamish) (total / rate per 1,000)	Issaquah (total / rate per 1,000)	Total King County (total / rate per 1,000)
Population	42,746	432,100	9,610	1,646,200
Violent Crime ²	68 / 1.6	944 / 2.3	17 / 1.8	8,343 / 5.0
Property ³	1,664 / 39.4	14,608 / 35.7	799 / 83.1	112,109 / 67.6

¹ Source: 1999 King County Annual Growth Report

² Violent crimes include murder, rape, robbery, and aggravated assault

³ Property crimes include arson, burglary, larceny (theft), and vehicle theft

The crime rates for the various jurisdictions reported in Table 3.8-7 above, indicate that their crime rates are generally lower than for King County in general, which includes incorporated as well as unincorporated areas. These numbers may suggest that residents in these jurisdictions are less at risk of experiencing a violent crime or property crime than King County residents in general.

To establish a baseline for crimes and incidents reported by residents along East Lake Sammamish Parkway, incident report data were obtained from King County Police for 1999. The numbers of crimes and incidents are summarized by proposed trail segment in Table 3.8-8.

Table 3.8-8
**Crimes and Incidents Along East Lake Sammamish Parkway
in the Vicinity of the Corridor for 1999**

Reported	Segment	Segment	Segment	Segment	Segment	Segment	Segment
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Incidents	1	2	3	4	5	6	7
Trespassing	0	0	6	5	4	0	0
Burglary	0	0	0	0	1	0	0
Larceny	0	0	1	1	0	0	1
Vandalism	0	0	2	0	0	0	0
Fire	0	0	0	0	0	1	0
Accident	0	1	1	20	4	1	45
Hit and Run	0	0	0	0	0	0	7
Random shots fired	0	0	1	0	0	0	0
Injured Deer	2	0	0	6	1	0	1

Of existing trails in the area, only crime and incident data specific to a portion of the Burke-Gilman Trail was available. Although this data is not directly comparable to the proposed Interim Use Trail because of its location within a university campus, it is representative of activities that could take place along an urban trail. The University of Washington Police provided incident report data for the University of Washington's section of the Burke-Gilman Trail in Seattle, Washington for the years 1995 through 1999. Approximately three miles of the trail fall within the University of Washington Police Department's jurisdiction. Eleven categories were characterized and results summarized in Table 3.8-9. These data are for reported incidents only. This section of the Burke-Gilman Trail is almost entirely urban and non-residential and serves an average of 2,000 to 3,000 users per day, depending on the season, weather, and day of week. The University of Washington segment is also located in a much higher density setting than the single-family residential sections located along the corridor. Several thousand students and other residents are located in dormitories, fraternities/sororities, and apartments in the vicinity of the trail. Anecdotal information regarding crimes in areas adjacent to the trail include bike thefts and car prowls in parking lots. It is believed that perpetrators of these crimes do indeed use the Burke-Gilman Trail as a means of entry and exit, due to numerous easy escape venues (e.g., major streets and sidewalks) (Girts, personal communication, 2000). The likelihood of this type of crime occurring along the proposed East Lake Sammamish Interim Use Trail is small due to its secluded nature and infrequent opportunities for easy escape. In addition, incidental surveillance provided by legitimate users could also serve as a deterrent to crime along the Interim Use Trail.

Table 3.8-9
Reported Crimes and Incidents on the University of Washington Segment
of the Burke-Gilman Trail¹

Reported Incident	1995	1996	1997	1998	1999	Total
Burglary	1	2	2	0	2	7
Trespass	0	0	0	0	1	1
Vandalism	0	0	1	2	0	3
Property Damage	0	0	0	0	1	1
Accident	0	2	2	0	5	9
Fire Hazard	0	0	0	0	1	1
Suspicious Circumstances/Persons	8	2	7	6	3	26
First Aid/Injury	2	6	1	1	2	12
Assault	0	1	1	0	0	2
Lewd Conduct	5	1	0	2	1	9
Drug Use	0	0	1	2	4	7

¹Girts, D.A., Sergeant, University of Washington Police Department, 2000.

These crime and incident data summaries help to characterize the numbers and types of crimes experienced by residents on regional, local, and neighborhood levels that are relevant to the proposed East Lake Sammamish Interim Use Trail project. Several comments were received during the scoping process that focused on issues of trespassing, vandalism, and crime related to Interim Trail use. The crime and incident examples in Tables 3.8-7 to 3.8-9 suggest that crime along East Lake Sammamish Parkway is a small percentage of total crimes relative to the city or county jurisdictions in the vicinity of the corridor. The numbers of crimes reported for the University of Washington stretch of the Burke-Gilman Trail are relatively small, even though the trail is located in a densely populated, urbanized area.

Table 3.8-10 summarizes media reports of various problems and crimes on regional trails. These stories represent crimes and incidents reported in the media, though many crimes and incidents are not reported to either law enforcement authorities or the media. This information is provided to help characterize the types of crimes and incidents that occur on urban/suburban trails in the region and provide examples of anecdotal trail information.

Table 3.8-10
Media Reports of Incidents and Crimes on Regional Trails

Trail	Location/Year	Type of Incident	Source
Foothills Trail	Near Orting, WA / 1999	hit-and-run bicyclist collided with an inline skater causing serious injury	http://pages.prodigy.net/corvallis/more.htm
Foothills Trail	Near Orting, WA / 1999	vandalism and graffiti by local juveniles	http://pages.prodigy.net/corvallis/more.htm
Burke-Gilman Trail	Seattle/1998	graffiti on retaining walls	http://www.averina.com/z981114.htm
Burke-Gilman Trail	Seattle/1999	references to speeding bicyclists	http://weber.u.washington.edu/~klange/kidbik.html and http://www.seattle/pi/getaways/041698/burk16.html
Cedar River Trail	Ravensdale/1997	murder of woman	Seattle Times online archives
Interurban Trail	Near Kent/1999	body found on trail	Seattle Times online archives
Burke-Gilman Trail	Seattle/1997 (year of incident)	jogger run down by bicyclist	Seattle Times online archives; op/ed

Published Reports of the Effects of Urban/Suburban Trails on Crime

Accidents that occur on multiple use trails result from various factors. These include reckless and irresponsible behavior, poor user preparation or judgment, and unsafe trail conditions (Moore et. al., 1992; Moore, 1994). For instance, one of the main complaints of residents living next to the Burke-Gilman Trail along the east shore of Lake Washington is the speed of bicyclists on the mixed-use trail (City of Seattle, 1987). Anecdotal reports of high-speed bicycling on the Burke-Gilman are common (for example, see Conklin, 1998; Biking with Kids, online 1999). Because the Burke-Gilman Trail is open to all forms of non-motorized transportation except equestrian, the range of user speeds is quite large and has sometimes led to accidents between users. Similar concerns and complaints have been recorded for other rail-trails in the United States (Craig and Wake, 1999; Moore et al., 1992).

More formal studies have been conducted to characterize and evaluate the effects of rail-trails on surrounding communities. These studies tend to focus on crime and property values and are typically based on survey and interview data, not scientific surveys. Three commonly cited studies are summarized below.

The Seattle Engineering Department Office of Planning conducted a study in 1987 to assess the effect of the Burke-Gilman Trail on property values and crime in adjacent communities (City of Seattle, 1987). The Burke-Gilman Trail is approximately 17 miles long; 9.85 miles are located within the City of Seattle. The trail follows an abandoned railroad right-of-way that passes through residential neighborhoods as well as the University of Washington, commercial and industrial areas, and links several parks. This study, entitled *Evaluation of the Burke-Gilman Trail's Effect on Property Values and Crime*, revealed a marginal increase in crime as a result of the trail. Telephone surveys of residences along the Seattle portion of the Burke-Gilman Trail and residences one block from the trail were conducted regarding property values and crime.

Both single-family residences and condominiums were surveyed; only single-family data regarding crime are summarized here. Of 152 single-family residences immediately adjacent to the trail, 110 residences were surveyed. Of the 110 residents surveyed, 4.5 percent reported that their homes had been broken into by a trail user over the eight years the trail had been open. When asked if a trail user had ever vandalized their property, 3.6 percent of the residents surveyed responded affirmatively, corresponding to approximately less than 1 incident of vandalism per year over the eight years the trail had been open. When asked if they had made an effort to keep trail users off their property, 84.6 percent of residents stated that they had not and indicated that trespassing had not been a serious problem. Approximately 60 percent of the residents stated that the trail had increased their quality of life in their neighborhood and 5.4 percent felt that the trail had lowered their quality of life. Three members of the Seattle Police Department were interviewed about crime on the Burke-Gilman Trail as well; their responses were based on personal experience and not on research data. They indicated that, in their opinion, homes along the trail did not experience a higher rate of break-ins and vandalism than homes not located in the vicinity of the trail. This study did not include sophisticated statistical analyses, but reported percentages of the total survey sample. This survey has not been updated since the original report was published in 1987.

In 1995, the Conservation Fund and the Colorado State Parks State Trails Program conducted a series of surveys to determine the effect of three urban trails on crime (The Conservation Fund and Colorado State Parks, 1995). These trails were the Highline Canal Trail, the Weir Gulch Trail, and the Willow Creek Trail within the Metro-Denver area. These trails run through residential neighborhoods along natural waterways and also cross busy intersections and pass through commercial and retail areas. Telephone surveys of 14 residents adjacent to these trails were conducted regarding crime. This study, entitled *The Effect of Greenways on Property Values and Public Safety* (1995), found little negative effect on these trails from crime. None of the single-family homes adjacent to the trail attributed theft from their property to a trail user. One property owner (7 percent of sample) adjacent to the trail experienced vandalism; this resident subsequently kept trail users off his/her property by adding lighting and fencing. When asked if the trail had increased the quality of life in their neighborhood, 71 percent of the 14 residents interviewed stated that they believed that their quality of life had increased compared to 7 percent who believed that the trail had decreased their quality of life. The remaining respondents felt the effect on quality of life was neutral or did not know. In addition to the surveys of residents along the trails, four police officers with knowledge and experience with these trails were interviewed. None of them recalled an incident where the trail was used to commit a crime. They indicated that criminals typically use a car rather than a bicycle or other forms of transportation, including walking. They also indicated that people did not tend to loiter on trails; parking lots and open areas were more common as gathering places. This study did not include sophisticated statistical analyses, but reported percentages of the total survey sample. Because of the small sample size, results should not be considered representative of all adjacent homeowners.

In January 1998, The Rails-to-Trails Conservancy published *Rail-Trails and Safe Communities, The Experience of 372 Trails* (Tracy & Morris, 1998). This study summarizes the results of 372 completed surveys (out of 861 surveys sent out) that asked trail managers to report on personal or property crimes for the years of 1995 and 1996. This study concluded that crime on rail-trails is not a common occurrence and that the crime that does take place on rail-trails is not greater

than, and is generally lower than, crime for other activity locations (e.g., parking lots/garages, homes, on the street). Major crimes, reported in terms of rates per 100,000 population, for rail-trails were notably lower than the national rates for the same crimes.

The National Association of Reversionary Property Owners (NARPO) conducted a study entitled *The Burke-Gilman Trail and Property Values* (NARPO, 1997). The NARPO web site states that:

NARPO is a non-profit, tax exempt foundation dedicated to principles that private property ownership must be maintained in the hands of citizens and not the government. NARPO's major goal is to assist property owners in maintaining their complete land ownership and resisting government confiscation.

This report evaluated property value trends for property along and near the Burke-Gilman Trail. This study reports that properties along the Burke-Gilman Trail had not increased in value at the same rate as other comparable properties near the trail and in King County. This report attributes the difference in property value increases to crime and other incidents along the trail as reported in the local media. This study was not conducted or reported using scientific methodology, and was performed by a special-interest group. These data cannot be interpreted as though generated by an unbiased source.

Based on results experienced elsewhere, there is a potential for a slight increase in crime committed by trail users of the proposed Interim Use Trail. There are no reported data to indicate an increase in crime will be significant, or be attributed solely to development of the trail, particularly where the railbed has functioned as a trail for years. However, individually-affected property owners will likely view any increase in crime as significant.

IMPACTS

Utilities

Proposed Action

Impacts to utilities adjacent to or crossing the corridor are expected to be minor. No utility level of service changes would occur because the proposed Interim Use Trail would not require electricity, water, or sewer service. Utilities will need to be located prior to activities that more than superficially disturb soils because some minor digging would occur to install fence posts, sign posts, and bollards. The deposition and leveling of gravel on the railbed is not expected to disturb utilities. No impacts to the operation of any utilities are expected because no construction of above-ground structures and only minor amounts of digging will occur.

Cumulative Impacts

No cumulative impacts to utilities are anticipated because the Interim Use Trail will not use or disrupt any utilities as part of its operation or maintenance.

Alternative 1 Bypass

Some utilities may be impacted by the construction of Alternative 1 where the proposed Interim Use Trail would be routed to East Lake Sammamish Parkway SE and then to East Lake Sammamish Place SE. Some utilities have their main lines located beneath East Lake Sammamish Parkway and/or cross the corridor. Utilities would need to be located prior to any digging or earth moving. Some disruption to the operation of utilities during construction activities may occur. Construction along East Lake Sammamish Place SE and East Lake Sammamish Parkway SE would last approximately two weeks.

Cumulative Impacts

No cumulative impacts to utilities are anticipated because the Interim Use Trail will not use or disrupt any utilities as part of its operation or maintenance.

Alternative 2 No Action

No impacts to utilities would occur with this alternative because no construction activities except tie removal would occur within the corridor.

Cumulative Impacts

No cumulative impacts to utilities are anticipated because the Interim Use Trail will not use or disrupt any utilities as part of its operation or maintenance.

Public Services

Proposed Action

Impacts to police, fire/medic, and ambulance emergency services during and after construction are not expected to be significant. Impacts to emergency services are discussed below for each jurisdiction.

Police. The City of Redmond Police Department does not anticipate any significant impact to their services as a result of the development of the proposed East Lake Sammamish Interim Use Trail, based on their experience with the Sammamish River Trail. Very little impact to the Redmond Police Department occurred as a result of the opening of the Sammamish River Trail; crime on the trail and in associated parking areas was reported to be no worse than any other recreational facility (Morgan, personal communication, 1999). These reports are anecdotal and based on personal experience of informed professionals, but are not supported by research data.

The City of Sammamish and King County portions of the proposed Interim Use Trail would be served by King County Police; City of Sammamish has a dedicated police force provided through contract with the King County Police. These jurisdictions combined would encompass the longest stretch of the Interim Use Trail. The King County Police Department has lobbied for money from the State's Criminal Justice Fund for equipment for bicycle patrols for the proposed Interim Use Trail (e.g., bikes, emergency packs, etc.). Training for the bicycle officers would not require additional funds. The department plans to have five police officers trained in bicycle policing and plans to have two bicycles available at all times to respond to emergencies along the proposed Interim Use Trail. Should funding for bicycle patrols fail to be allocated, patrol cars and medic units would be the only response vehicles for the proposed Interim Use Trail (Baranzini, personal communication, 2000).

The Issaquah Police Department does not foresee any need to increase the number of personnel on the force with the opening of the East Lake Sammamish Interim Use Trail. The City of Issaquah voted in November of 1999 to annex an unincorporated area that will expand the coverage of the police force. Three to four new officers will be added to the force as a result of the annexation; however, it is not known if the proposed trail was taken into account when this decision was made (J. Kozar, personal communication, 1999).

Fire/Medic. The number of vehicle/trail user or trail user/trail user accidents may increase as a result of the development of the Proposed Action, but is not anticipated to be significant. Fire department personnel have reported that emergency calls increased along the Sammamish River Trail following its initial opening, but decreased over time, due to trail improvements such as trail markers, installation of a walking path, and resting areas for horses (Altenburg, personal telephone communication, 2000).

For all emergency services, access to homes during construction of the Interim Use Trail would have to be maintained. Access to some homes could be delayed during construction activity which is anticipated to occur during regular working hours, Monday through Friday. Project or construction managers will be responsible for notifying homeowners in advance of construction activities.

Public Safety Issues. Impacts to adjacent property owners regarding public safety issues are not anticipated to be significant. Occasional incidents of trespass or private property vandalism could occur. Major crimes such as robbery are not anticipated due to the isolated nature of the proposed Interim Use Trail and the limited number of opportunities for easy escape.

Cumulative Impacts

Cumulative impacts related to Public Services serving the project area are anticipated to result from the increasingly urbanizing environment between Redmond (at the north end of the corridor) and Issaquah (at the south end of the corridor). Increased urbanization is expected to result in a growing demand for all public services. Increasing urbanization and the resultant demand on public services is expected to occur with or without the Interim Use Trail. The Interim Use Trail is not anticipated to contribute significantly to these impacts.

Alternative 1 Bypass

Impacts to public services related to the implementation of Alternative 1 would include those listed above for the Proposed Action. In addition, the King County Police Department would likely experience an increased need for public safety patrols with the addition of foot and bicycle traffic to an approximately 1.6 mile stretch of trail moved from the corridor to East Lake Sammamish Parkway SE and East Lake Sammamish Place SE. An increase in demand for ambulance and/or medic teams may also occur as a result of this alternative due to its location on the Parkway shoulder for 0.2 miles to the north and 0.7 miles to the south of East Lake Sammamish Place SE. (See Transportation Section 3.7 and Recreation 3.11 for additional discussion of trail user safety along the bypass route.)

Cumulative Impacts

Cumulative impacts related to Alternative 1 would be the same as for the Proposed Alternative.

Alternative 2 No Action

Impacts to police, fire/medic, and ambulance services would be shifted to other areas if Alternative 2 is selected. Existing roadways and trail facilities in the region would likely experience an increase in use as the region's population continues to grow. These existing facilities would need to absorb trail users who may have otherwise used the proposed East Lake Sammamish Interim Use Trail. An increase in accidents and incidents would mean an increased demand for emergency services. The locations where this demand would shift cannot be predicted precisely, but are most likely to be in the general vicinity of the corridor.

Cumulative Impacts

Cumulative impacts related to Alternative 2 would be the same as for the Proposed Alternative.

MITIGATION MEASURES

Mitigation measures related to utilities within and across the corridor may include:

- Close coordination with utility providers to identify and physically locate utilities prior to the initiation of any construction activity.
- Notification of property owners prior to the initiation of any construction activity to obtain input on utility connection locations that may not be documented.
- Notification of property owners in advance of breaks in service to affected utilities.

King County may implement the following mitigation measures related to police, fire/medic, and ambulance:

- Limit trail use to daylight hours. King County regulates trails as linear parks; trails are subject to usage restrictions per King County Code section 7.12.480 (Marelli, personal communication, 2000).

- Implement trail patrols by volunteer trail ranger programs (Rail-to-Trails Conservancy, 1998, 1999).
- Provide master keys to locked bollards to all emergency service agencies serving the corridor (Eksten, personal communication, 2000).

King County may implement the following mitigation measures related to the safety and security of homes, residents, and trail users along the corridor:

- Fencing (see Aesthetics section for details).
- Signage and enforcement of trail rules and etiquette.
- Signage along corridor to educate trail users about the limits of the public right-of-way and to warn against trespass of private property (Moore, 1994).
- Speed limits for bicyclists per King County's Trail Use Ordinance number 8518, that establishes a speed limit of 15 miles per hour for all trails.
- Implement trail patrols, by volunteer trail ranger programs (Rail-to-Trails Conservancy, 1998, 1999).
- Notify adjacent property owners of proposed construction schedule.
- Notify emergency service providers of proposed construction schedule.

SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

No significant unavoidable adverse impacts related to utilities or public services in the project area are anticipated as a result of any of the project alternatives.

3.9 CULTURAL AND HISTORICAL RESOURCES

AFFECTED ENVIRONMENT

Because the Proposed Action and Alternative 1 are within 0.25 mile of each other, the affected environment is considered here to be the same.

Native American History of Region

The proposed East Lake Sammamish Interim Use Trail is within the territory of the Sammamish, a Duwamish subgroup, and the Snoqualmie people (Ruby and Brown, 1992; Swanton, 1978). The project area was probably utilized by both of these Southern Coast Salish groups, who spoke the Lushootseed language (Suttles and Lane, 1990). Both groups resided in winter villages along shorelines, bays, and rivers and relied heavily upon salmon for subsistence. During non-winter months, groups would leave the villages for shellfish, marine and freshwater fish, land game, waterfowl, sprouts, roots and bulbs, berries, and nuts (Suttles and Lane, 1990; Gunther, 1981).

Food resources acquired during the spring, summer, and fall were used for winter supplies and trade, as well as immediate consumption. The project area would have provided terrestrial game such as deer, elk, and small mammals whose meat was eaten fresh or dried for storage. A wide variety of plant resources were sought for medicinal and technological items. Tules and cattails were collected by streams and marshes and used for making mats, and western red cedar was used for rope, baskets, and numerous household items (Gunther, 1981). Haeberlin and Gunther note that canoe/tree burials were the predominant practice for the Snoqualmie (1930). The deceased would be placed in a canoe, and the canoe placed in a tree or on a frame (Suttles and Lane 1990). Often, as the canoe decayed and collapsed, the human remains would be redeposited to the ground below. Haeberlin and Gunther note that underground burial was reserved for the lower class (1930).

Following the signing of the Point Elliott Treaty in 1855, the Snoqualmie were relocated to the Tulalip Reservation (formerly called the Snohomish Reservation) along with several other groups (Ruby and Brown, 1992; Swanton, 1978). All of these groups together comprise the Tulalip Tribes of the Tulalip Reservation, although many Snoqualmie refused to move to the Reservation. Indeed, the Snoqualmie Tribe has been recently recognized by the Federal Government, an acknowledgment of their autonomy. The Sammamish were also assigned to the Tulalip Reservation, unlike other Duwamish subgroups, who were assigned to the Port Madison Reservation. However, Ruby and Brown (1992) report that the Sammamish were autonomous and apparently did not go to the Tulalip Reservation, but were possibly absorbed by neighboring groups, such as the Snoqualmie. Little has been written about the Sammamish, except to note their orientation toward seasonal exploitation of interior lakes, streams and prairies as opposed to marine resources (Geo-Recon International Ltd., 1980). Bagley notes that in 1854 the Sammamish “numbered 101 all told and were probably a band of the Duwamish” (1929). There is some disagreement on whether the Sammamish were an autonomous group, as discussed by Spier (1936). Spier notes that Gunther “includes Lake Sammamish, the presumable locale of the Sammamish, within Duwamish territory...” but that Curtis lists them separately as the Sabábsh with territory along “...the shores of Lake Sammamish and the eastern shore of Lake Washington” (1936).

Lake Sammamish was originally known as Squak Lake (Bagley, 1929; E.J. Fish, 1981), which likely originated from Sqwa'xw, an ethnographic village identified by Waterman (ca. 1920) at the mouth of Issaquah Creek. Hitchman (1985) identifies the origins of the word Sammamish as coming from the Indian name samma (“the sound of the blue crane”) and mish (“river”). “Other tribal names were Xa-tcx-atcu, meaning ‘small lake’ (as compared to Lake Washington), and Sts-apa-bc, which has about the same meaning” (Hitchman, 1985).

Native American Cultural Resources Identified in the Vicinity of Project Area

Prehistoric sites are located in the vicinity of the proposed project area at both the northern and southern ends of the route. Six prehistoric sites, including the Marymoor Site (45KI9) are within one mile of Segment 1 of the proposed East Lake Sammamish Interim Use Trail (Table 3.9-1). The Marymoor site was identified in 1964 and excavations there in the 1960s determined the site was an occupation area. Artifacts from the site included microblade cores and blades, Cascade points, large stemmed points and basalt cobble tools. Based on this assemblage and corrected

radiocarbon dates, Lewarch et. al (1995) consider the site to date from between 4,200 and 2,700 years BP (before present). The Marymoor Site was listed on the National Register of Historic Places in 1970. Other small sites in the northern portion of the project area have been identified, although four of these are presumed destroyed. Two of the sites presumed destroyed were likely damaged when the Sammamish Slough was dredged and shortened in 1912 (E.J. Fish, 1981) and again in 1948 and 1963 (Robinson, 1988). Nevertheless, it is highly likely that other cultural deposits are present in the area.

Site 45KI448, a historic site with a prehistoric component has been identified within one mile of Segment 6 of the proposed East Lake Sammamish Interim Use Trail. The site was identified in 1999 and consists of a low density lithic scatter, possibly Olcott (5,000 – 8,000 BP). The prehistoric materials were mixed with more than 250 historic artifacts. The site is likely related to the historic town at Monohon (Nelson, 1998; Norman, 2000).

One prehistoric site has been identified within one mile of Segment 7 of the proposed East Lake Sammamish Interim Use Trail. The site, a lithic scatter, is along the general route of an Indian trail identified by the General Land Office in 1864.

Several documents indicate the likelihood of additional Native American-related cultural resources in the area. Waterman (ca. 1920) identifies an Indian village called Sqwa'xw on Issaquah Creek at the present Lake Sammamish State Park. Larson indicates that the longhouse at Sqwa'xw was 90 feet x 40 feet (1984). Robinson additionally notes the presence of a Sammamish burial ground "in or near the present town of Issaquah" (1986), although there is no more specific information available as to its location. Additionally, an important Native American trail that connected the Puget Sound to the eastern part of the state passes the southern end of Lake Sammamish near Issaquah Creek (Government Land Office, 1864). E.J. Fish (1981) maps an Indian hop-picker village west of the Issaquah Creek, which is likely the campsite run by early settler Lars Wold and referred to by Craine (1983). The hop-picker village likely dated to the last half of the 19th century. Larson suggests that the hop-picker village subsumed the village noted by Waterman (1984). The potential cultural resources identified above would be in the vicinity of Segments 6 and 7.

Consultation with Ray Mullen of the Snoqualmie Tribe confirms much of the above information regarding the cultural sensitivity of the shoreline at Lake Sammamish State Park and north at Segments 6 and 7 of the proposed East Lake Sammamish Interim Use Trail corridor. Mr. Mullen considers all culverts potentially culturally significant as well. Additionally Mr. Mullen indicates the area between Louis Thompson Road south to the boundary between Segments 4 and 5 of the proposed East Lake Sammamish Interim Use Trail corridor should be considered culturally sensitive. Construction in these areas should be coordinated with tribal representatives to avoid unnecessary impacts to cultural resources.

Euro-American History of Region

Redmond and Issaquah were two main historic settlements in the region of the project area, one at either end of Lake Sammamish. Additionally, several smaller communities developed on either side of Lake Sammamish. Transportation by settlers in the region was limited to wagon roads and boat travel. Between 1860 and 1889 boats operated on what was known as Squak

Lake transporting people and freight (H. Fish, 1976). In the 1880s, the railroad was constructed along the east side of Lake Sammamish. The first railroad to operate was the Seattle, Lake Shore & Eastern, which was sold to Northern Pacific in 1892. Northern Pacific continued to operate on the line until 1970 when Northern Pacific was acquired by Burlington Northern (E.J. Fish, 1981).

Redmond, to the north of Lake Sammamish, was settled in 1871 by Luke McRedmond and Warren Perrigo. Both made land claims and cleared their land on the east side of the Sammamish River. Originally, the town was called Salmonburg after the plentiful salmon running in the Sammamish River. The town came to be known as Melrose, after the Melrose House, an inn operated by the Perrigos. In 1883 McRedmond, the town's first postmaster, changed the town's name from Melrose to Redmond causing long-term bitterness between the Perrigos and McRedmonds (Stein, 1998). The main industries of the area were logging and milling which provided prosperous living for both laborers and businessmen. By 1900 the population of Redmond had reached 271 (Bagley, 1929). Redmond was incorporated on January 1, 1912, after its population reached 300 (Stein, 1998).

Present-day Marymoor Park was originally the estate of Seattle businessman James W. Clise. In 1904 Clise built a hunting lodge, known as Willowmoor, on 78 acres as part of a hunting preserve. Originally used only in summer, the lodge was enlarged by 1907 when the family moved there permanently. Clise later purchased an adjoining 350 acres. The property was developed as a model farm, used as a dairy farm and purchased by King County in 1963. The mansion currently houses the Marymoor Museum of Eastside History. Clise had a reproduction of a Dutch windmill built at Willowmoor around 1905. The windmill was originally designed for grinding grain but was converted in the 1940s to a water pump (Gemperle, 1972).

Issaquah, at the south end of Lake Sammamish, was first settled by several families in 1863 (E.J. Fish, 1981). Ingebright Wold was issued a homestead at what would become the town of Issaquah. Originally known as Olney, the town was incorporated as Gilman in April 1892. Issaquah became the town's permanent name in February 1899. Coal was discovered along the Squak River in 1862, although mining operations were not in place until 1887. Dairying, hop farming, and logging joined mining as the major industries of the Issaquah area.

The Casto (or Castro) family homesteaded the parcel now known as Pickering Farm. In November 1864, a group of Native Americans attacked the settlers at Issaquah Creek, seeking retribution for the deaths of several of their members. The Casto family was slain and four of the Native Americans were killed in the siege that was later known as the Squak Massacre. Many of the remaining settlers moved to Seattle following the conflict and the area was resettled the following year (Bagley, 1929; E.J. Fish, 1981). Territorial Governor William Pickering, Sr., bought the Casto property in 1867 and his descendants operated a dairy farm there until 1975. The Pickering barn and adjacent land were placed on the National Register of Historic Places in 1983.

Smaller communities developed between Redmond and Issaquah, including Campton, Monohon, and Inglewood. Logging operations existed all around Lake Sammamish between the 1880s and 1920s (Bagley, 1929). The combination of access to the lake for transport of logs to the mill and access to the railroad for transport of lumber to the market influenced the development of the mills in these locations. Several mills were located in the immediate vicinity of the project area.

The Campbell Mill, Weber Shingle Mill, and Allen & Nelson Mill at Monohon were several of the more prominent mills on the east side of Lake Sammamish (E.J. Fish, 1981). Mill sites often became company towns as mill workers built houses and farmed.

An example of a company town was in Monohon, which was homesteaded by Martin Monohan in 1877. In 1888 the Donnelly Post Office moved across Lake Sammamish from the west side to the east side to be nearer to the Seattle, Lake Shore and East Railroad (History Ink, 2000). The Allen & Nelson Mill was established there in 1889 to be near the railway. "Fifty homes and a 20 room hotel were built for employees. In 1892, Monohon had the sawmill, a coal mine, and a population of 80. The main products were lumber, hops..., and dairy products" (History Link, 2000). E.J. Fish (1981) notes that Monohon Mill was the biggest lumber producer on Lake Sammamish and reached its peak in the early 1920s. The mill and much of the town burned down in 1926 and the post office closed soon after.

E.J. Fish notes an Indian hop-picking village to the west of Issaquah Creek (1981). The Wold hop farm in the Issaquah area expanded from a half an acre in 1868 to 50 acres in 1893 before the industry died out in Issaquah by 1900 (E.J. Fish, 1981). Hop-picking was seasonal work which drew local Native Americans as well as Chinese immigrants to work in the hop fields near Issaquah Creek. A riot against the Chinese workers occurred in 1885 on the Wold hop farm (E.J. Fish, 1981; Craine, 1983).

Euro-American Cultural Resources Identified in the Vicinity of Project Area

Historic sites have been identified both within one mile of, and adjacent to, the project area. Four historic sites have been identified within one mile of Segment 1 of the proposed East Lake Sammamish Interim Use Trail corridor. Clise Mansion, listed on the National Register of Historic Places in 1973, and the Dutch windmill, listed on the State Register of Historic Places in 1973 are within the current Marymoor Park to the west of the project area. The William White Mansion, owned by Justice White who married Redmond co-founder Luke McRedmond's daughter, is located northwest of the project area. The Yellowstone/Red Brick Road, a historic road to the east of the project area was listed in the National Register of Historic Places in 1973. This site also extends to within one mile of Segment 2 of the proposed East Lake Sammamish Interim Use Trail corridor.

One historic site with prehistoric component (45KI448) has been identified within one mile of Segment 6 of the proposed East Lake Sammamish Interim Use Trail corridor. Over 250 artifacts were collected at the site, with 240 historic artifacts which suggests a historic occupation, although no structures were observed (Norman, 2000). The site is in the vicinity of the Allen & Nelson Mill at Monohon and may be associated with the town of Monohon.

Four historic sites have been identified within one mile of Segment 7 of the proposed East Lake Sammamish Interim Use Trail corridor. The Pickering Barn (45KI142H) was built in two phases in 1890 and 1906. The site includes the presumed remains of the Casto cabin. Pickering Barn was listed on the National Register of Historic Places in 1983 and is also subject to the Issaquah Municipal Code (Larson, 1984). Site 45KI451, an abandoned railway grade is located southeast of the project area. It is likely related to mining or logging activities in the region. Site 45KI452

is represented by concrete reservoir features associated with the Issaquah Water Works. Site 45KI453, a concrete foundation, is southeast of the project area, on the north side of Interstate 90.

There are several indications of additional historic cultural resources in the project area. At the former location of Campton, the Campbell Mill Boarding House (KC0523) was identified by the King County Cultural Resources Department in 1978 as locally significant. The boarding house was built in 1910 and is the only remaining house built by the Campbell Mill. The mill started at the turn of the century and continued operating through ca. 1930. Pilings at the northeast end of Lake Sammamish are the only remains of the mill itself. The pilings are visible from the existing railbed. The above resources are adjacent to Segment 2 of the proposed East Lake Sammamish Interim Use Trail corridor. The King County Cultural Resources Department identified a cluster of unrelated but locally significant buildings near Weber Point in 1978. While only one structure appears to have survived to date, the area may still contain intact historic deposits. This potential resource is located adjacent to Segment 3 of the proposed East Lake Sammamish Interim Use Trail corridor. Similarly, there is a potential for historic cultural resources near Inglewood in Segment 4 and Monohon in Segment 5, although no structures that still exist were identified by King County Cultural Resources Department. King County Cultural Resources Department identifies the location of the Frank Tibbetts house (KC0168) immediately adjacent to the railbed in Segment 7. Almost directly across the tracks, E.J. Fish locates the Anton Ek house (1981). Neither structure is extant, but both could be considered locally significant since Tibbetts and Ek were Issaquah pioneers. Larson (1984) and Nelson (1994) note that sites are likely to occur close to Issaquah Creek, which intersects the project area in Segment 7. Nelson considers the area to have high probability for cultural resources with strong local significance (1994).

**Table 3.9-1. Recorded Cultural and Historic Resources
Identified Within One Mile of Project Area**

Vicinity	Site Number/Name	Site Type	Status
Segment 1	45KI8	Presumed occupation	(probably destroyed)
Segment 1	45KI9/Marymoor Site	Prehistoric occupation	Listed NRHP 1970
Segment 1	45KI10	Presumed occupation	Not eligible
Segment 1	45KI190H/Justice Wm. White House	Historic residence/estate	Eligible to NRHP
Segment 1	45KI191H/Marymoor Museum (Clise Residence)	Historic residence/estate	Listed NRHP 1973
Segment 1	45KI192H/Dutch Windmill	Dutch reproduction windmill	Listed SRHP 1973
Segment 1	45KI266	Possible prehistoric camp	(destroyed)
Segment 1	45KI466/Bear-Evans Creek Site	Prehistoric camp/historic roadbed	Not eligible
Segment 1	45KI467/Union Hill Road Site	Prehistoric/historic scatter	(destroyed)
Segments 1-2	45KI196H Yellowstone/Red Brick Road	Historic road	Listed NRHP 1974
Segment 6	45KI448	Prehistoric/historic scatter	Not eligible
Segment 7	45KI142H/Pickering Farm	Historic dairy farm	Listed NRHP 1983
Segment 7	45KI451H	Railway grade	Not eligible
Segment 7	45KI452H	Concrete reservoir features	Not eligible
Segment 7	45KI453H	Concrete foundation	Not eligible
Segment 7	45KI457	Prehistoric lithic scatter	Not eligible

NRHP: National Register of Historic Places

SRHP: State Register of Historic Places

IMPACTS

The impacts of the Proposed Action and Alternatives 1 and 2 are discussed below. All segments of the corridor have some potential for unknown cultural resources. Specific segments with higher potential risk for cultural resources are Segment 1, Segment 2, the area north of Weber Point in Segment 3, Segment 4 from Louis Thompson Road south to the Segment 5 boundary (for both the Proposed Action and Alternative 1), the boundary between Segments 5 and 6, the northern portion of Segment 6, and Segment 7. It is important to note that additional unknown cultural resources may potentially exist outside of the above areas.

Proposed Action

Gravel Placement

No impacts to cultural or historic resources are anticipated, because there will be no subsurface disturbance.

Culvert Maintenance

Impacts to cultural and historic resources range from low to moderate depending on the maintenance measures. General maintenance of culverts has low potential to disturb unknown

cultural resources. If excavation into the native soil below culvert gravels occurs, such as for installation of a catch basin, the probability increases to a moderate potential that unknown cultural resources may be disturbed. It is important to note that the tribes in particular generally consider culverts to have potential undisturbed cultural deposits associated with them, and have requested that tribal representatives monitor any excavations in these areas. Culvert replacement is not planned for the Interim Use Trail, but may be a part of the Master Plan.

Signage/Bollards

Impacts to cultural and historic resources range from low to potentially high depending on the installation method and location. There is low potential to disturb unknown cultural resources when excavating/installing bollards in the existing railbed. Depending on location of the signage, the potential to disturb unknown cultural resources ranges from low to high. Some areas impacted by signage may still contain intact unknown cultural deposits related to historic mills or prehistoric land use associated with the shoreline resources and creeks. The use of heavy equipment may increase the potential impact for both these activities.

Fencing

Impacts range from low to potentially high, depending on the location and type of installation associated with the placement of fencing. Direct drive installation of fence posts will have minimal potential to disrupt cultural resources; however, excavation for concrete posts could disrupt resources. It is recommended that potentially sensitive areas be identified and surveyed prior to construction, and that tribal representatives be available to monitor construction in areas with high potential for cultural resources.

Trail Usage

Impacts resulting from trail usage are expected to be low. Trail users will be required to stay on the trail and measures such as fencing and signage will be used to ensure they comply. This should minimize potential impact to cultural resources.

Alternative 1 Bypass

Gravel Placement

Potential impacts associated with gravel placement are the same as those identified for the Proposed Action.

Culvert Maintenance

Potential impacts associated with culvert maintenance are the same as those identified for the Proposed Action.

Signage/Bollards

Potential impacts associated with signage/bollards are the same as those identified for the Proposed Action.

Ramp Construction

The impact of the activities associated with ramp construction depends on the methods and equipment used. The use of heavy equipment may increase the potential impact from these activities. The use of fill will have low to no impact on buried cultural resources, while earthmoving of intact soil increases the likelihood of disturbing unknown cultural resources. Culvert replacement has high potential to disturb unknown cultural resources.

Trail Usage

Potential impacts associated with trail usage are the same as those identified for the Proposed Action.

Alternative 2 No Action

Maintenance

Maintenance activities are anticipated to have a minor impact to cultural and historic resources as long as no ground disturbing activities take place off the railbed. Refer to the discussion under the Proposed Action for potential impacts related to culvert replacement.

MITIGATION MEASURES

To mitigate potential disturbance of unknown cultural resources, an archaeological monitor will be present at all construction activities that involve excavation into native soils.

An archaeologist will be consulted regarding the placement of signs, bollards, and fences off of the railbed to avoid disturbing buried cultural deposits. If general areas are identified where signs, bollards, and fences will be installed, an archaeologist can identify more specific locations with low or no probability for disturbing unknown cultural resources.

No specific archaeological sites should be identified or located on the signage.

If cultural resources are identified during construction activities, work should halt in the immediate area and the appropriate city or county department and the Washington State Office of Archaeology and Historic Preservation should be contacted.

SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

Inadvertent loss, damage or alteration to cultural resources is possible with any construction project. However, the intended use of archaeological and cultural monitors and the limited construction proposed for the Interim Use Trail reduce the likelihood of these impacts.

3.10 AESTHETICS AND VISUAL QUALITY

This section describes the existing aesthetics and visual quality of the Interim Use Trail corridor and discusses the potential impacts of the proposed Interim Use Trail alternatives in terms of compatibility and compositional harmony with the existing environment. Because aesthetic considerations are highly personal and subjective, it is difficult to quantify aesthetics, or aesthetic impacts. Graphics and photographs are included to assist with this characterization.

AFFECTED ENVIRONMENT

Existing Representative Viewscapes

The Interim Use Trail corridor traverses the entire length of the eastern shore of Lake Sammamish. Views of and toward Lake Sammamish are a predominant visual feature. However, the location of the corridor relative to the lake's shoreline varies considerably. Some areas have a significant amount of separation between the corridor and homes or buildings, while other segments have little or no separation, bringing the corridor, and in some places the railbed itself, into close proximity to homes or other buildings.

General Railbed and Corridor Aesthetics and Visual Quality

The Interim Use Trail corridor is currently unvegetated and covered with a layer of gravel in most areas. The gravel varies in size along the railbed from relatively small pieces (5/8") to fairly large pieces (4"). Prior to the placement of gravel, the railbed contained rails and ties for rail car travel. For over a century, the railbed and much of the former railroad corridor has been clear with little or no vegetation present (See Section 3.6, Land and Shoreline Use, for a more detailed history of the corridor). At road and driveway crossings, entry points to the existing railbed are currently blocked by a length of PVC pipe suspended between two concrete barriers. Signage indicating that the existing railbed is currently closed to public access are also located at these crossings. (See Figure 3.10-1 for a representative example.)

Homes with the Corridor Along the East Property Edge

Many homes are situated so that the proposed Interim Use Trail passes along the east edge of their property. Distances from the railbed centerline to the homes vary from approximately 15 feet to over 200 feet. Views to the east vary widely, but may include shrubby vegetation, trees, hillsides with grassy vegetation, East Lake Sammamish Parkway, or access roads or driveways (See Figure 3.10-2 for a representative example).

Homes with the Corridor Along the West Property Edge

Many homes are situated so that the proposed Interim Use Trail passes along the west edge of their property. Distances from the railbed centerline to the homes vary from approximately 50 feet to over 200 feet. The predominant view to the west from these homes is Lake Sammamish.

Many residents whose west property boundaries abut the corridor have constructed boating and/or swimming docks along the shoreline to access the lake. At present, the existing railbed does not disrupt views of the lake, but is a strong visual component of the landscape (See Figure 3.10-3 for a representative example).

Homes Separated from Waterfront Areas by the Corridor

Approximately 39 homes are situated so that the proposed Interim Use Trail bisects property or land use, separating the home from the waterfront areas, most of which contain boat/swimming docks. Distances from the railbed centerline to the homes vary from approximately 50 to 200 feet. The predominant view from these properties are the same as for properties with the trail along their west edges. However, in this case, the existing railbed physically and visually separates the upslope portion of the property from the waterfront portion of the property (See Figure 3.10-4 for a representative example).

Commercial Areas Along the Corridor

The corridor passes through commercial areas at both the north and south ends of the project area. At the north end of the corridor (City of Redmond), commercial uses include gas stations, car washes, landscape material yards, office complexes, and small warehouses. At the south end of the corridor (City of Issaquah), commercial/industrial uses include small warehouses, office buildings, and retail businesses. Some of the businesses on each end of the corridor have views of the existing corridor from some locations on their property (See Figure 3.10-5 for a representative example).

Views from Side Streets, Access Roads, and Driveways

Side streets, access roads, and driveways create openings with views of Lake Sammamish for vehicle occupants and in a few cases, for properties upslope of the shoreline. These openings provide visual relief from the developed nature of the project area as seen from East Lake Sammamish Parkway. The existing railbed is not visible from the Parkway for most of its length, but can be seen in some segments for short distances.

Views from Uphill Properties Along East Lake Sammamish Parkway

In areas where residences are located upslope from East Lake Sammamish Parkway and the corridor, the predominant view is of Lake Sammamish. These residences cannot see the existing railbed in the majority of cases because of the sloping nature of the topography in the project area. In addition, these residences look across the Parkway toward the lake; the Parkway and its associated traffic are a strong visual component of these views.

Undeveloped Properties

Some corridor segments remain undeveloped and are vegetated in various ways. Some are mostly grassy, others contain shrubby plants and/or low profile trees, and others contain mature

evergreen and/or deciduous trees with a grassy or shrubby understory (See Figure 3.10-6 for a representative example).

IMPACTS

Proposed Action

General Railbed and Corridor Aesthetics and Visual Quality

As previously noted, it is difficult to characterize aesthetic and visual quality impacts, because these factors are subjective and vary according to individual tastes and values. The following discussion focuses on changes in aesthetic character from current conditions. Overall, impacts related to the general aesthetics and visual quality of the railbed and corridor are anticipated to be minor. The corridor has been clear with little or no vegetation since the opening of the Northern Pacific Railroad. Therefore the general look of the proposed Interim Use Trail corridor would not be significantly different from that experienced following the construction, opening, and operation of the railroad. In some instances, the visual quality of the Interim Use Trail may be considered an improvement over the current visual quality of the existing railbed and over the previous visual quality of the railroad tracks. For example, weeds and other vegetation will be controlled and other aesthetic improvements (e.g., litter removal) would create a more visually pleasing scene.

Split-rail fencing (four-foot, cedar rail) would be installed in areas where wetlands and streams need to be protected and where the trail edge needs delineation because of topography changes. These split-rail fences would modify views of the wetlands and streams immediately behind the fencing. However, most adults would be able to comfortably see over the tops of the fences or through the railings to views beyond the fence line. A total of approximately 37,000 of linear feet of split-rail fencing would be installed as part of the Proposed Alternative. Cedar railings are intended to be visually compatible with the sensitive natural areas they protect and with surrounding vegetation. Chain-link fencing would be installed in specific areas along the corridor where safety, liability, trespass, and privacy issues occur. A total of approximately 13,000 of linear feet of chain-link fencing would be installed as part of the Proposed Alternative.

Homes with the Corridor Located Along the East Property Edge

Homes along the corridor that would have the Interim Use Trail located along the east edge of the property boundaries would experience impacts to easterly views where there is little or no vegetative screening from trail users and their activities.

In instances where there is less than 20 feet between the Interim Use Trail and a home, see-through chain-link fencing would be installed along the west trail edge. Fencing in this location would obscure easterly views. However, the majority of residences also have westerly views toward Lake Sammamish. These homes tend to be oriented toward lakeside views rather than easterly views that include the East Lake Sammamish Parkway (Figure 3.10-7).

Impacts to residents in this situation are not anticipated to be significant, although many comments during the scoping process indicated that residents feel the “institutional” look of chain-link fencing is a departure from the existing neighborhood ambience. Chain-link fencing with slats would also be installed between the trail edge and homes where privacy is compromised by the ability of Interim Use Trail users to look directly into a home’s living spaces. Residents who are closest to the trail may perceive the presence of fencing as a negative impact; numerous comments have been received by current residents expressing concern about this impact.

Where the Interim Use Trail passes along the east edge of residents’ properties, members of the public would be provided visual access to views of Lake Sammamish. “The view is better from the Parkway” is a common theme among adjacent property owners.

Homes with Corridor Located Along the West Property Edge

Homes along the corridor that would have the Interim Use Trail located along the west edge of their property would experience impacts to the visual quality and aesthetics of their existing views primarily where fencing is installed. Because the proposed Interim Use Trail surface and location would be essentially the same as for the existing railbed, no impacts related to the Interim Use Trail are anticipated.

Where docks and waterfront recreation property create safety, liability, security, and/or privacy issues, chain-link fencing would be installed on the lakeside edge of the Interim Use Trail with locking gates to provide access by property owners (Figures 3.10-8 and 3.10-9). In cases where fencing is installed, the fencing would slightly alter existing views toward the lake but would depend upon the location of the viewer relative to the fence. For instance, many homes are located upslope of the proposed Interim Use Trail. The lakeside windows and decks are typically located higher than the six-foot proposed height of the fencing, so views of the lake would not be blocked. The fencing itself would be chain-link which allows an individual to see through to the other side, with a slight to moderate screening effect. Impacts related to this fencing would depend upon the distance of the viewer from the fencing—the farther away a viewer is from the fence, the less obscure the views on the opposite side. Overall, a total of approximately 13,000 feet of chain-link fencing is anticipated to be installed along the proposed Interim Use Trail. A number of existing residents have commented that they would consider this impact significant. Homeowners in five corridor segments would have modified views; the potential impact and perceived severity would depend upon a number of factors, including topography, site orientation, and viewer perception.

Homes Bisected from Waterfront Areas and/or Docks by the Corridor

Visual impacts to residents whose homes are separated from the waterfront portions of their property would be largely the same as for situations where the Interim Use Trail abuts the west edge of property boundaries, except that in many cases these property owners maintain landscaping on the lake side of the railbed and views of these areas will be obscured (Figure 3.10-9).

Commercial Areas Along the Corridor

Impacts to views from commercial areas at the north and south ends of the corridor would not be significant. These buildings are located within highly developed areas with limited natural or natural-looking views. In the Issaquah area, chain-link fencing is currently present on both sides of the corridor and the existing railbed is gravel-covered; the proposed Interim Use Trail would not create a significantly different view than what currently exists.

Views from Side Streets, Access Roads, and Driveways

Views from side streets, access roads, and driveways would not be impacted if the Interim Use Trail were implemented. The proposed trail surface would look largely the same as the existing railbed. Should the Proposed Action be implemented, bollards would replace the existing suspended PVC pipe at access points located at street and driveway crossings (Figure 3.10-10). Bollards may offer a slight enhancement to the visual quality and aesthetic appeal of access points, which are currently blocked by a suspended pipe. Bollards would prevent vehicles from entering the Interim Use Trail, but would allow passage of walkers, joggers, and bicycles. No negative visual or aesthetic impacts related to bollards at access points are anticipated.

Views from Uphill Properties Along East Lake Sammamish Parkway

No impacts to views from properties uphill from the proposed Interim Use Trail and on the east side of East Lake Sammamish Parkway are anticipated. The Interim Use Trail would not be visible to the majority of these properties. Where the Interim Use Trail would be visible, it would look largely the same as the existing railbed and would not have any significant impact on views from these properties (See general corridor discussion above). It may be possible to see fencing in some places, trail users moving along the Interim Use Trail, and to see bollards at access points where homes are located opposite a crossing point. These impacts are not anticipated to be significant due to the existence of East Lake Sammamish Parkway and its associated vehicles within the view corridor.

Undeveloped Properties

Impacts to views from undeveloped properties or toward undeveloped properties would not be significant if the Proposed Action were implemented. The visual quality of the Interim Use Trail would be largely the same as the existing railbed. Should split-rail cedar fencing be installed to protect sensitive areas, some trail user views could be altered, although trail users would be in any given segment for a matter of minutes in most cases. Chain-link fencing would also be installed as a safety measure. Impacts would be generally the same as for the split-rail fencing. The visual and aesthetic disruption to a trail user would be small and short in duration.

Alternative 1 Bypass

Impacts related to visual quality and aesthetics would be nearly the same for Alternative 1 as for the Proposed Action for much of the corridor. Under Alternative 1, however, approximately 47

properties, whose properties or land uses would be separated by the Interim Use Trail, would be bypassed. Impacts to these properties under Alternative 1 would be the same as for homes with the corridor located along their east edge. Where the Interim Use Trail would shift to East Lake Sammamish Parkway under this alternative, these properties would be completely bypassed and their views would not be affected by the Interim Use Trail or its associated trail users. The total number of feet of fencing required for safety and/or security purposes (approximately 13,000 feet) would be greatly reduced because the most significantly affected properties would be bypassed under Alternative 1.

The bypass alternative would affect approximately 18 properties not previously affected by the proposed East Lake Sammamish Interim Use Trail. These properties would experience an increase in the number of people/bicyclists, residents would see passing in front of their homes along East Lake Sammamish Place SE. No fencing is proposed for the by-pass alternative and the roadway itself would not change in appearance, except for striping to delineate the Interim Use Trail from the vehicle lane. (See Figure 3.10-11 for a representative view of East Lake Sammamish Place SE.)

Alternative 2 No Action

Under the No Action Alternative, there would not be any impacts related to visual quality and aesthetics. Under the No Action Alternative, maintenance of the corridor would continue to occur and would include measures such as periodic litter collection and weed control. No significant visual or aesthetic changes would be made to the corridor.

MITIGATION MEASURES

Proposed Alternative

Mitigation measures related to the visual quality and aesthetic impacts of the Proposed Action would be limited to the placement of fencing so as to minimize disruption to views (e.g., Lake Sammamish). Residents will be given the opportunity to install fencing of their own choice (e.g., split-rail, etc.) if they object to the look of the proposed chain-link fencing. Residents would be reimbursed up to the amount of an equivalent length of chain-link fencing.

Alternative 1 Bypass

Mitigation measures related to the visual quality and aesthetic impacts of Alternative 1 would be the same as for the Proposed Action.

Alternative 2 No Action

Because no visual quality or aesthetic impacts related to the No Action Alternative are anticipated, no mitigation measures are proposed.

SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

While views throughout the total length of the corridor would be largely unaffected as a result of the Interim Use Trail, some nearby residents may perceive the fencing as a significant impact. However, this would not be considered a regionally significant impact.

3.11 RECREATION

This section describes trail resources in King County and within the vicinity of the proposed East Lake Sammamish Interim Use Trail and discusses their relationship to the proposed project. Trail facilities are also described and discussed for King County and the cities of Redmond, Sammamish, and Issaquah. Relevant plans, policies, and regulations are then discussed for all jurisdictions. Potential impacts to residents, other current corridor users, and the regional and local trail supply and demand are discussed for each action alternative and the No Action Alternative. This discussion focuses on hiking and bicycling trails because horses are not being considered in the Interim Use Plan. Trail user considerations in the Master Plan are independent of considerations in the Interim Use Plan, as described in Chapter 2. Mitigation measures are identified where applicable in the last part of this section. Sources of information used to complete this chapter include King County Parks and Recreation information on the local and regional trail network, the *King County Park, Recreation and Open Space Plan* (1996), and other relevant planning documents for the various jurisdictions involved.

AFFECTED ENVIRONMENT

Existing Use of Corridor

The proposed East Lake Sammamish Interim Use Trail would be developed along the railbed of an abandoned Burlington-Northern Railroad corridor. The corridor is approximately 11.1 miles long and runs from Redmond and Marymoor Park at the north end to Issaquah through Lake Sammamish State Park at the south end. Of the total corridor length, 10.8 miles are under consideration for the Interim Use Trail. The corridor is bordered by private residences, recreation property, or commercial property along much of its length, but views of Lake Sammamish are available along the entire corridor. For a complete description of the history of the corridor, see Land and Shoreline Use, Section 3.6.

At present the corridor is closed to public use; however, the right-of-way is being used by adjacent property owners, area residents, and the general public in various ways. Adjacent property owners confirm that unauthorized public use occurs despite signage and trail closure.

Several home owners along the corridor have reported various unauthorized / illegal uses of the right-of-way as documented in *Appendix E: Public Record of the East Lake Sammamish Trail Interim Use and Resource Protection Plan Draft Report* (King County, 1999). These include such recreational uses as bicycling, jogging, and walking with and without dogs. Installation of barriers at each crossing appears to have reduced use by bicyclists.

King County Parks and Recreation is currently maintaining the corridor in a preserve-and-protect manner. These maintenance activities include site inspection, garbage removal, removal of invasive vegetation and hazardous trees, and responding on an emergency basis to reported ditch and culvert cleaning, such as blockages, and emergency maintenance response (Marelli, personal communication, 2000).

Existing King County Trails

King County owns and manages a number of recreational trail resources, including many local and regional trails. At present, there are over 100 miles of paved and nearly 70 miles of unpaved regional trails in King County (King County, 2000). Additional miles of trail are proposed for development, which will connect to existing trails in the region, and create a continuous network of non-motorized transportation corridors. Of the existing trails within the King County trails system, the Burke-Gilman and Sammamish River Trails are perhaps the most well-known and most highly used paved trails. User counts and surveys have been performed for these trails every five years from 1980 to 1995 as reported in *Summary Report, Burke-Gilman/ Sammamish River Trails, User Counts and Survey Results* (Moritz, 1995). Use of these trails has increased over the years since the trails opened. The most notable increases have occurred as the undeveloped gap between the Burke-Gilman and Sammamish River Trails was developed for use in phases between 1985 and 1993. For this study, the two trails were treated as a single unit for data collection and evaluation purposes. Weekend cyclists make up approximately 75 percent of the users and average approximately 18 miles per trip while pedestrians make up approximately 20 percent and average approximately five miles per trip. There were an average of 3,284 trail users passing data collection locations on Saturdays in May, 1995. On weekdays, cyclists make up approximately 75 percent of the users and average approximately 13 miles per trip while pedestrians make up approximately 21 percent of users and average approximately four miles per trip. The average number of trail users passing data collection locations on Tuesdays in May, 1995 was 2,209 (Moritz, 1995).

The proposed East Lake Sammamish Interim Use Trail would connect to the Sammamish River Trail at the north end via Marymoor Park, providing a continuous system of trails from Issaquah, north to Bothell/Kenmore/Lake Forest Park and then to Ballard in Seattle. At the south end, the trail would be approximately one-half mile from the Highpoint/Issaquah-Snoqualmie Trail which is planned to connect to the Preston-Snoqualmie Trail in the future. The proposed East Lake Sammamish Interim Use Trail would also connect to the south end of Issaquah's Pickering Trail (King County, 1998) (Figures 3.11-1 and 3.11-2).

Figures 3.11-1 and 3.11-2 illustrate the existing and proposed trail system in King County and the jurisdictions of Redmond, Sammamish, and Issaquah.

Existing Trail and Adjacent Recreation Facilities in Redmond

The City of Redmond owns and operates several miles of recreational trails and a system of parks that contain public trails and other amenities. The proposed Bear/Evans Creek Trail would eventually connect to the northerly end of the proposed East Lake Sammamish Interim Use Trail. The Bear/Evans Creek Trail, which is anticipated to open some time after 2001, would also connect to the proposed Redmond River Walk that will be a part of a 10-mile pedestrian trail encircling the city (City of Redmond, 1997).

The City of Redmond is currently in the process of establishing the East Lake Sammamish Waterfront Park. This new park will be located adjacent to the Interim Use Trail within the city limits of the new City of Sammamish, just south of NE 49th Place, and will likely be implemented through a partnership between the Redmond, Sammamish, and King County jurisdictions (Gorremans, personal communication, 2000).

King County's Marymoor Park is located at the north end of Lake Sammamish. According to the City of Redmond's *Parks, Recreation, and Open Space Plan* (1997) demand analysis survey results, Marymoor Park is used "considerably more" than any other Redmond city park. This 522-acre park contains a variety of recreational amenities and is bordered by a portion of the corridor for the proposed East Lake Sammamish Interim Use Trail. Marymoor Park has four restroom facilities, each containing 3 to 4 stalls per gender, that may be used by future trail users who access the corridor at its north end. The park has a total of 1,351 parking spaces (641 paved and 710 gravel). At present, parking at Marymoor Park can reach capacity during peak weekend usage periods and/or events; and some evenings during spring and summer months when park users park on unauthorized grassy areas (Kostal, personal communication, 2000).

Existing Trail and Adjacent Recreation Facilities in Sammamish

The new City of Sammamish's recreational facilities are public parks, some of which are still in the development stage and may contain trails. Private recreational facilities are also located within the city. For example, the Waverly Shores Homeowners Association Private Boat Launch is located along the shoreline of Lake Sammamish and is near the corridor proposed for the East Lake Sammamish Interim Use Trail (Figure 3.11-2). The private beach can be accessed via a residential path that crosses the corridor as well as from East Lake Sammamish Shore Lane via SE 33rd Street. Waverly Shores Private Boat Launch serves approximately 100 homes in the Waverly Hills development along SE 33rd Street. Residents tow their boats on boat trailers from Waverly Hills to the boat launch, crossing the corridor (Miglorie, 1999). There are up to ten other private beach clubs along the eastern shoreline of Lake Sammamish within the vicinity of the corridor. Inglewood Beach Club at the foot of Inglewood Hill Road and View Point Park Club are examples of community beaches. These private beach clubs are typically owned and maintained by local homeowner groups and are used for swimming, picnicking, and passive recreation activities such as bird watching and enjoyment of the lake view.

Existing Trail and Recreation Facilities in Issaquah

The City of Issaquah maintains a system of recreational and regional trails. The King County East Plateau Connector Trail begins about 0.25 mile east of East Lake Sammamish Parkway SE along SE 43rd Way. This trail is soft-surface to Issaquah-Pine Lake Road and paved until it connects with the Klahanie Trail which is also paved (usage numbers for these trails are not available).

Lake Sammamish State Park is located at the southerly end of the corridor. This park contains approximately 507 acres and 6,858 feet of waterfront. The park provides many recreational amenities and opportunities such as swimming and picnicking. The park contains restroom facilities, a 2,300-space regular parking lot, and a 250 boat-trailer parking area at the boat launch which is near the corridor. Peak usage typically occurs on weekends during summer months. Usage is weather-related; on a sunny weekend afternoon this parking area is at or near 100 percent capacity between 8:30 and 9:00 a.m. and remains filled until approximately 6:00 to 7:00 p.m. Restrooms are cleaned one to two times per day and garbage is collected daily (Benson, personal communication, 2000).

Relevant Recreation Plans, Policies, and Regulations

City of Redmond

The City of Redmond has set forth policies for its Parks and Recreation Department to develop and improve an integrated system of parks, trails, and open space (City of Redmond, 1997). In particular, policy PR-15 in the *Parks, Recreation, and Open Spaces Plan* (1997) (also known as PR-14 in the *Comprehensive Plan*, 1997) states that the city should pursue the acquisition of railroad right-of-way that crosses Redmond and then travels southeast along Lake Sammamish. PR-15 further states that the City should work with King County and Washington State to acquire this right-of-way. The *Recreational Trails Plan* (FP-55 and PR-56 through PR-74) outlines the City of Redmond's policies toward the planning and development of trails within its planning area. The *Parks, Recreation, and Open Spaces Plan* describes a variety of policies concerning the preservation and conservation of public lands, natural areas, and other open space areas to enhance community quality and help maintain species and habitat diversity. The *Parks, Recreation, and Open Spaces Plan* also outlines the City's implementation strategy for executing the established policies and recommendations. To this end, in 1995, the Redmond City Council adopted a figure of 0.25 miles per 1,000 population as a Level of Service (LOS) standard for trails within the City of Redmond. In addition, as part of the City of Redmond's *Parks, Recreation, and Open Spaces Plan* (1997), a demand analysis survey was conducted to determine park and recreation facility needs. When survey respondents were asked to prioritize the types of activities they would like to participate in if facilities were available, walking for pleasure, bicycling for pleasure, and nature walks were first, second, and fourth, respectively, in the top five ranking. Based on this information, the City of Redmond has determined future trail mile needs. As of 1997 the city's trail system totaled 9.54 miles. Based on Redmond's LOS for trails, the projected trail demand for year 2012 is 14.14 miles, leaving a deficiency of 4.60 miles of trails (City of Redmond, 1997) if Redmond's trail inventory remains at its current level.

By 2012, the City of Redmond anticipates a maximum population of 56,550 residents, an approximate 60 percent increase over its 1990 population of 35,800. This increase in population is expected to result in an increased demand for park and recreation facilities within the Redmond area (City of Redmond, 1997).

City of Sammamish

The newly incorporated City of Sammamish is presently using the *Interim Sammamish Development Code* (City of Sammamish, 1999) as its principal planning document; this document is based on the *1994 King County Comprehensive Plan* with amendments. The City of Sammamish is in the process of developing a parks, recreation and trails plan (Mathes, personal communication, 2000), but in the meantime, these facilities are included in King County parks and recreation planning documents as described below.

The area now known as the City of Sammamish experienced more than a 30 percent growth in population from 1990 through 1998. The estimated population of the now-incorporated City of Sammamish for 1999 was 29,344. The City of Sammamish is expected to grow at six percent per year over the next few years, with a project population of 35,632 in the year 2003 (ECONorthwest, 1998). This increase in population will likely lead to an increasing demand for park and recreation facilities within the Sammamish area.

Issaquah

The City of Issaquah's *Final Comprehensive Plan* (1995/1997) identifies the need for trail improvements and trail connections and adopts the *City of Issaquah Urban Trails Plan* (1995) and the *Issaquah Area Wildlife and Recreation Trails Plan* (1992) as future trail planning documents. These plans outline the city's goals for developing an interconnected network of non-motorized trails that provide a variety of recreational opportunities (e.g., walking, bicycling, horseback riding, etc.). Associated planning activities are anticipated to enable the City of Issaquah to "promote a pedestrian and bicycle friendly atmosphere in the urban environment with connections to the forested and less urbanized areas within and surrounding the City" (City of Issaquah, 1995/1997). The City of Issaquah adopted new level of service standards for parks in December 1999 that would include the proposed East Lake Sammamish Interim Use Trail in calculations of recreation supply for future planning purposes (Ordinance 2257, Effective 12/20/99). This indicates that the City of Issaquah is relying on the Interim East Lake Sammamish Trail to meet its future recreation supply needs.

Issaquah's *Final Comprehensive Plan* (1995/1997) also discusses the former Burlington-Northern rail line and its potential future uses. The document's rail preservation policy states: "Encourage preservation of the existing Burlington-Northern Rail facilities for rail transportation purposes." The Issaquah Historical Society is planning the development of a trolley line that would use the Burlington-Northern tracks from downtown Issaquah north to SE 43rd Way. The City Council has agreed to purchase the railbanked right-of-way, and the Trolley Committee is working with King County and Washington State Parks to enable replacement of rail and ties between the State's boat launch at Lake Sammamish State Park up to SE 43rd Way (Justice, B., 1999).

The population of the City of Issaquah is projected to increase at a 2 percent annual growth rate (City of Issaquah, 1995/1997). The anticipated population increases in the City of Issaquah and the greater Issaquah areas are expected to result in increased demand for recreational trail facilities within and surrounding the City of Issaquah in the future (City of Issaquah, 1995/1997).

King County

As early as 1971, planning documents for King County and incorporated jurisdictions identified the corridor as a future regional trail facility. The proposed East Lake Sammamish Interim Use Trail has been mentioned in various planning documents as a key section in the completion of a fully-connected regional trail system. The various documents that specifically identify the corridor as a potential East Lake Sammamish Trail are summarized in Table 3.11-1 below.

Table 3.11-1 Recreation and Trail Planning Documents

Document Name and Year	Relevant Content
King County Urban Trails Plan (1971)	This plan outlines the vision of and need for a county-wide system of trails. This early plan identified 42 existing or potential trails (621 miles) within King County. The Lake Sammamish Loop was fifth in King County's priority ranking; a trail envisioned to completely encircle Lake Sammamish.
King County General Bicycle Plan (1975)	This plan includes the East Lake Sammamish Trail as a regional priority (Motion 2420).
King County Regional Trails Plan (1992)	Initiated as a result of a voter-approved open space bond in 1989, this plan includes up to 75 miles of trail corridors. This plan provides guidance for continued development of a "safe and pleasurable" recreational system for the citizens of King County. The plan is also intended to give needed focus to acquisition of properties and to potential long-term trail improvements. This Plan discusses goals and objectives responsive to the need for trails and the relationship between the County's regional trail system and other trails and trail programs. Design and construction criteria, management and maintenance issues, and ultimate trail uses and improvements are also discussed. This report describes current ownership and proposed trail development of an East Lake Sammamish Trail (page 23).
King County Nonmotorized Transportation Plan (1993)	This document indicates that local bicyclists have long identified a loop around Lake Sammamish "as one of their most desired projects." As part of this, the development of the Burlington-Northern Railroad right-of-way into a trail (following abandonment) is considered necessary for bicycle transportation in the East Sammamish area (page 11). This is the adopted plan that resulted from the 1987 King County Roadshare Program.
City of Redmond Parks, Recreation and Open Space Plan (1997)	This document includes recommendations for future/proposed trails within Redmond and vicinity. The proposed East Lake Sammamish Trail is identified and negotiation for acquisition of the corridor by King County is recommended (page VIII-16).
City of Issaquah, Final Comprehensive Plan (1995/1997)	This document discusses potential future uses of the Burlington-Northern rail line within Issaquah city limits and encourages the preservation of the existing rail facilities for rail transportation purposes.

According to the 1992 *Regional Trails Plan*, the major existing and planned or completed trails

in the vicinity of the proposed East Lake Sammamish Interim Use Trail are the Burke-Gilman Trail, Sammamish River Trail, Evans/Bear Creek Trail, the Issaquah-Snoqualmie Trail, and the East Lake Sammamish Trail. Completing or connecting these trails would create a continuous trail system from Seattle to Snoqualmie. This continuous network of non-motorized trails is also identified in the *King County Nonmotorized Transportation Plan* (1993) which outlines the goals and objectives for growth and enhancement of nonmotorized transportation options within King County. This plan acknowledges (1) that regional trails can serve a transportation as well as recreational function and (2) that integration of recreational trails and trails that follow “non-recreational” corridors is important to the development of an effective nonmotorized transportation system.

More recently, the *King County Park, Recreation, and Open Space Plan* (1996) identified regional and local trail systems as important to providing recreation and circulation within local communities and to linking urban and rural areas of the county. This plan recommended the preservation of existing trails and the identification and development of new and/or proposed trails to accommodate a wide range of users. Section S-104 of the *King County Park, Recreation and Open Space Plan* states “King County should complete a regional trail system, which includes connections between trail corridors to form a countywide network.” In addition to King County’s classification system, King County has also adopted standards as a measure of service for parks and open space, including trails, and bases its service standards on those developed by the National Recreation and Parks Association (NRPA). These guidelines recommend one trail system per region with a capacity of 90 hikers/per day/mile (King County, 1995). King County citizens will continue to be underserved by the existing trail system until the planned trail system is complete (Eksten, personal communication, 2000).

King County’s population is anticipated to increase from 1,677,000 in 1999 to 1,833,000 to 1,856,000 in 2010, an increase of approximately 10 percent (King County, 1999). This increase in population, coupled with the trend toward higher density urban neighborhoods, is expected to result in an increased demand for parks and open spaces (including trails) within King County (King County, 1999).

The Community Advisory Group (CAG), along with King County Department of Transportation’s (KCDOT) consultant for the East Lake Sammamish Parkway, developed the *East Lake Sammamish Parkway Design Assessment Report* (Parsons Brinckerhoff, 1998) for the KCDOT. This report recommends making bicycling and pedestrian improvements to East Lake Sammamish Parkway to improve pedestrian safety and accessibility. This would entail the addition of separated walkways along the existing roadway. About 20 percent of the east side of East Lake Sammamish Parkway and about 12 percent of the west side were found suitable for separated walkways and would not require the purchase of additional land. The justification for these recommendations is that the walkway would promote “a feeling of community and connection along East Lake Sammamish Parkway.”

IMPACTS

Proposed Action

Adjacent Properties and Direct Users of the Corridor

The Interim Use Trail is anticipated to attract up to 500 trail users per day during peak periods. The majority of users are expected to be walkers and joggers with a smaller percentage of trail users riding bicycles. These user numbers are based on existing research data and a recent observation of trail use on a local trail. Research data indicate that usage in rural areas on unpaved trails is approximately 50 to 60 users per day in early summer to peaks of approximately 300 per day (Oregon Dept. of Transportation, 1988), with approximately 75 percent of usage occurring on weekends. Recent data collection on the Snoqualmie Valley Trail in early May indicated peak user numbers of 116 over a three-hour period, on the gravel trail near Carnation. (Note that user numbers indicate one-way trips, total number of individuals is likely lower.) Anticipated user numbers of up to 500 per day over the 10.8 mile length for the proposed East Lake Sammamish Interim Use Trail during summer months is reasonable, given the proximity of the corridor to urban areas and extrapolation from the Burke-Gilman Trail user study (Moritz, 1995). Due to access restrictions and lack of restroom facilities, trail use is anticipated to occur predominately within the first three miles of each end of the corridor.

During construction, residents along the corridor would likely experience some disruption to recreational activities within their yards and on their boat docks. Construction equipment would move down the railbed within the corridor and would create a potential hazard for people and animals crossing or using the corridor. For short periods, these hazards could include gravel falling outside the corridor area when gravel placement by equipment occurs. Noise and dust associated with gravel placement could also disturb passive and active recreation activities of adjacent residents. Gravel placement would move quickly and impacts on a given homeowner should last no more than one to two days. Individuals would have to remain alert to the presence of equipment and construction activity and monitor the whereabouts and activities of children, the hard-of-hearing, and pets within and near the corridor. Because of the short duration of construction near individual residences, this impact is not significant.

Long-term impacts to residents along the corridor include the increased potential for non-motorized accidents with trail users, particularly for young children and the hard-of-hearing. Residents crossing the corridor to access their homes or private beaches / docks would need to remain alert to the presence of trail users, and use caution when crossing the corridor to avoid collisions with walkers, joggers, or bicyclists.

Because dogs will be allowed to accompany their owners on the proposed Interim Use Trail, there would be the potential for incidents between trail users and dogs on the trail, between residents and dogs on the trail, and between residents' and trail users' dogs. Both trail users and residents will need to maintain control of their pets and will not be able to allow them to roam untethered along or within the corridor. Trail users would also be responsible for picking up their pets' waste and disposing of it in an appropriate manner. Pet waste left on the trail or in the

corridor would not only disrupt the use and enjoyment of the corridor by trail users and residents, but would also pose health and sanitation issues for trail users, residents, and maintenance crews.

Existing recreational activities of adjacent property owners may be disrupted because the presence of trail users may be distracting to some people. Passive recreation such as sitting on decks may be disturbed by the passage of trail users. Activities of adjacent property owners that could injure or be a nuisance to trail users (e.g., playing catch across the trail) would be inhibited because those participating in the activity would need to remain alert to the presence of trail users. Some activities would be curtailed or prevented by the presence of security fencing (See Visual Quality and Aesthetics Section 3.10) that would create a barrier between the trail and the lake. The presence of trail users will bother some people more than others; this concern has been voiced by many homeowners during the scoping process.

Trespassing trail users could pose a liability issue for property owners if users are not warned that they are leaving the public right-of-way. Responsibility would fall to residents to contact law enforcement when trespassing occurs. This is likely to result in some conflicts, particularly in the period immediately following the opening of the trail.

Because the corridor would be a multi-use facility (walkers, joggers, and bicyclists), the gravel surface proposed for the East Lake Sammamish Interim Use Trail would benefit some users and hinder others. The gravel surface may not be appropriate for some users with disabilities. According to the *Guide for the Development of Bicycle Facilities* (AASHTO, 1999), crushed aggregate-surfaced trails often provide a lower level of service and require more maintenance than hard pavement surfaces. However, crushed-aggregate surfaces allow projects to be completed more quickly and with less cost. Also, with a gravel surface bicyclists' speeds are reportedly lower, making a trail more comfortable for other users.

Restroom facilities would be available at Marymoor Park and Lake Sammamish State Park. The distance between bathroom locations is consistent with other existing trails in the region. Because of the potential for trail users to utilize vegetated areas along the corridor as primitive bathroom facilities, health concern issues have been raised repeatedly by adjacent residents during the scoping process. The County is exploring options to locate portable toilets at a suitable location along the trail.

Marymoor Park would be a natural access point at the northerly end of the corridor. Trail users would likely use park facilities such as parking, restrooms, and garbage receptacles. An increase in use of restroom facilities and garbage receptacles could require more frequent cleaning and increased garbage hauling from the park. Because parking is currently in high demand and at or over capacity during times of peak usage, additional parking enforcement and signage would likely be needed to manage the parking in this area.

Side streets and roads in the vicinity of the corridor would also experience an increased need for parking enforcement and signage to prevent potential trail users from parking illegally, causing traffic hazards and disrupting the neighborhoods in the vicinity of the trail. Responsibility will fall to local residents to call law enforcement when illegal parking occurs. See Transportation, Section 3.7, for a full discussion of parking impacts related to potential side street access. Because limited restroom facilities will be available along the corridor, the 7-11 convenience

store, located at 3302 East Lake Sammamish Parkway SE across the road from the corridor, would likely experience an increase in the number of people wishing to access its restrooms. The proximity of the 7-11 store to the corridor would also likely result in an increase in the number of shoppers because there are no plans to provide concessions along the corridor. Unauthorized use of the parking facilities at the 7-11 store and adjacent shopping center could also occur.

Lake Sammamish State Park would be a natural access point for potential trail users at the south end of the corridor. The park has 250 boat-trailer parking stalls at the boat launch area that is adjacent to the corridor. Park rangers do not want trail users to use this area for parking when accessing the proposed East Lake Sammamish Interim Use Trail. Preventing use of this parking area by trail users will result in an increased need for signage and parking enforcement by park officials (Benson, personal communication, 2000). Because there is no connecting trail from the main parking area at the swimming beach to the Interim Use Trail, significant impacts to available parking are not anticipated.

Consistency with Adopted Plans and Policies

The development of the proposed East Lake Sammamish Interim Use Trail would be consistent with King County planning documents (See Table 3.11-1). The development of the Proposed Action would neither support nor conflict with the recommendations of the *East Lake Sammamish Parkway Design Assessment Report* (Parsons Brinckerhoff, 1998) as described earlier in this section. The potential legal ramifications of moving the Interim Use Trail out of the corridor and onto surface streets are discussed in Chapter 2, Project Description and Alternatives.

Cumulative Impacts

Cumulative impacts associated with the Proposed Alternative would mainly be the result of increasing urbanization in the project area and vicinity. Growing numbers of residents would likely result in greater demand for trail resources in the region, and an increase in use of the Interim Use Trail could be expected as the region's population grows.

Alternative 1 Bypass

Adjacent Properties and Direct Users of the Corridor

Impacts related to the implementation of Alternative 1 would be generally the same as the impacts described for the Proposed Action. Some differences in impacts for Alternative 1 would occur due to the location of a portion of the trail away from the corridor and along East Lake Sammamish Place SE and East Lake Sammamish Parkway SE. In particular, properties and/or land uses bisected by the corridor in this location would not experience impacts from trail users related to beach / dock access. Alternative 1 would provide additional public access for local trail users who would not need to park personal vehicles while using the Interim Use Trail.

The proposed ramp that would bring the trail alignment up to East Lake Sammamish Parkway SE and East Lake Sammamish Place SE under Alternative 1 would be designed to meet the Americans with Disabilities Act (ADA) code as closely as possible. The ADA sets a maximum grade of 1:12 for ramps and other slopes and requires resting platforms for slopes of certain distances.

Bicyclists and walkers who are currently using this street would have their activities curtailed while construction occurs. Construction of the trail along East Lake Sammamish Parkway would result in disruption to traffic flow while the separated, non-motorized lane is being developed. After the bypass section of the trail is developed, impacts to residents who access their property from East Lake Sammamish Place SE would be impacted by traffic congestion, given the narrow width of road right-of-way remaining for vehicle use. On street parking may be prohibited and a one-way traffic designation could be implemented. Some residents, predominantly those on the east side of East Lake Sammamish Place SE have already voiced concerns about these potential impacts. The portion of the trail on East Lake Sammamish Parkway north of East Lake Sammamish Place SE is 984 feet (0.2 mile) long and south of East Lake Sammamish Place SE is 3,769 feet (0.7 mile) long. Construction activities in these segments should last approximately three weeks.

Under the Bypass Alternative, there would be an increase in safety concerns associated with the portions of the trail moved up to East Lake Sammamish Parkway SE and East Lake Sammamish Place SE. These issues are due to the close proximity of trail users to the vehicle traffic on East Lake Sammamish Parkway SE and East Lake Sammamish Place SE, and the addition of 26 more driveway/trail intersections. These safety issues could reduce the usage of the Interim Use Trail by some groups, particularly the elderly and people with small children. Refer to Section 3.7, Transportation and Section 3.8, Public Services and Utilities, for a further discussion of safety impacts associated with Alternative 1.

Long-term impacts would include the need for motorists to maintain awareness of the presence of trail users and the education of trail users regarding safe trail use along a busy roadway. If the physical separation is only striping, these impacts will be exacerbated.

Consistency with Adopted Plans and Policies

Development of Alternative 1 would be consistent with King County's and other jurisdiction's planning documents (See Relevant Recreation Plans, Policies, and Regulations previously discussed in this section). Alternative 1 could partially satisfy the recommendations of the *East Lake Sammamish Parkway Design Assessment Report* (Parsons Brinckerhoff, 1998) for improvements to East Lake Sammamish Parkway. However, property acquisitions and/or permanent reconstruction of East Lake Sammamish Parkway are not reasonable or feasible as interim measures, nor is King County the agency with jurisdiction for the Parkway, now that the City of Sammamish has incorporated.

Cumulative Impacts

Cumulative impacts for Alternative 1 would be the same as for the Proposed Action.

Alternative 2 No Action

Adjacent Properties and Direct Users of the Corridor

No impacts associated with construction would occur if Alternative 2 is chosen.

Cumulative Impacts

Cumulative impacts associated with the No Action Alternative would include an increased demand on existing trail facilities in the region. Population gains accompanied by increases in traffic congestion contribute to greater regional trail use (Eksten, personal communication, 2000). With the population of King County projected to increase by approximately 10 percent by 2010 (King County Web site, 1999), and regional traffic congestion continuing to worsen, the expanded demand for trails and other non-motorized transportation venues would result in an increased use of roadways and existing trails by bicyclists and walkers. The increase in use of roadways would likely exacerbate the potential for accidents between vehicles and non-motorized roadway users. Within the study area, the demand is likely to be met by the Burke-Gilman and Sammamish River Trails as well as East Lake Sammamish Parkway. There is also potential for unauthorized non-motorized use of the corridor as the demand for trails in the region increases.

Consistency with Adopted Plans and Policies

The No Action Alternative is not consistent with regional planning documents. Impacts related to consistency with adopted plans and policies would likely entail re-prioritizing park, recreation, and trail development documents, including capital improvement plans. Each jurisdiction that currently includes a portion of the proposed East Lake Sammamish Interim Use Trail in its level of service standards and/or measures would also be required to re-prioritize its funding for recreational facilities to meet the needs of increasing demand should this No Action Alternative be implemented.

MITIGATION MEASURES

Proposed Action

Mitigation related to recreation impacts for the Proposed Action may include the following measures:

- Notification of proposed construction schedule to all adjacent homeowners.

- Hours of trail operation limited to daylight only; trail access points will not be gated.
- Signage and increased enforcement for parking at Marymoor Park. King County owns and operates Marymoor Park and would likely incorporate increased maintenance costs into its operating budget.
- Signage and increased parking enforcement for parking areas at Lake Sammamish State Park.
- See-through fencing to minimize the obstruction of views to the lake for residents and trail users.
- Signage indicating (1) limits of trail right-of-way, (2) trail etiquette, and (3) warnings to trail users to be aware of residents and their pets crossing the corridor.
- Signage at critical intersections, including Waverly Shores Private Boat Launch, warning trail users that they are approaching a dangerous intersection. Signage alerting vehicles with boat trailers that they are approaching a trail crossing and warning them not to block the corridor with either their vehicle or trailer may also be installed. Where sight distance is impaired, vehicles will have a stop sign and trail users will have the right-of-way; where sight distance is not impaired, no signage will be provided.
- Signage indicating rules, such as the “leash law,” regarding dogs accompanying trail users.
- Provision of dog waste bag stops along the corridor as well as litter and dog waste receptacles.

Alternative 1 Bypass

Mitigation measures for Alternative 1 would include the measures listed for the Proposed Action as well as the following:

- Signage alerting motorists to the presence of trail users may also be installed.

Alternative 2 No Action

Mitigation related to Alternative 2 may include increased education and outreach through news releases, mailings, and signage to prevent unauthorized use of the corridor and railbed. In order to protect natural resources, permits could be pursued to install fencing around streams and wetlands and to control invasive vegetation through best management practices (BMPs).

SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

Proposed Action

The Interim Use Trail will not result in any significant unavoidable adverse impacts to recreation. Minor disruptions will be unavoidable, but these impacts are not significant.

Alternative 1 Bypass

Impacts are similar to those described for the Proposed Action.

Alternative 2 No Action

Should Alternative 2 be implemented, unavoidable impacts would include:

- The need for potential Interim Use Trail users to find another trail resource in the region.
- The future demand for trails resulting from anticipated population increases would be shifted to existing roadways and trail facilities in the region, resulting in increasingly crowded conditions on these roadways and trails.
- Alternative trail resources are not currently identified.

These impacts may be considered significant from a regional recreational standpoint.

GIS MAPS

Figure 3-A

Figure 3-B

Figure 3-C

Figure 3-D

Figure 3-E

Figure 3-F

Figure 3-G

Figure 3-H

Figure 3-I

Figure 3-J

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Seattle, WA 98104

Dr. Robert Whitlam
Office of Arch. and Historic Preservation
P.O. Box 48343
Olympia WA 98504-8343

Mitigation Division
Federal Emergency Mngmt. Agency
Federal Regional Center
130 - 228th Street SW
Bothell, WA 98021

Doug Hennick
Wa. Dept. of Fish and Wildlife
16018 Mill Creek Blvd.
Mill Creek, WA 98012

Lyle Nelson
Lands Coordinator
Department of Fish and Wildlife
16018 Mil Creek Blvd
Mill Creek, WA 98012

William Stelle, Jr.
Regional Administrator
National Marine Fisheries
7600 Sand Point Way NE
Seattle, WA 98115-0070

Trent Hudak
Property Management
Burlington Northern Santa Fe
2454 Occidental Avenue South
Suite 1-A
Seattle, WA 98134

Hank Gobin
Tulalip Tribe
Cultural Resources Committee
6700 Totem Beach Road
Marysville, WA 98271

John Daniels, Jr., Chairman
Muckleshoot Tribe
39015 - 172nd Avenue SE
Auburn WA 98092

Walter Pacheco
Cultural Resources Committee
Muckleshoot Tribe
39015 - 172nd Avenue SE
Auburn WA 98092

James Rasmussen
Duwamish Tribe
Cultural Resources Committee
140 Rainier South, #6
Renton, WA 98055

Randy Persons
Washington State Parks
7150 Clearwater Lane
Olympia WA 98504

Rich Bepson
Jennifer Thomas
Lake Sammamish State Park
20606 SE 56th Street
Issaquah, WA 98027

Darryl Tinnerstet
WSDOT
P.O. Box 47331
Olympia WA 98504-7331

Washington State Dept. of Transp.
Northwest Region
15700 Dayton Avenue North
Seattle, WA 98133-9710

Don Peterson
Federal Highway Administration
Washington Division Office
Suite 501, Evergreen Plaza
711 South Capitol Way
Olympia WA 98501-1284

Ray Mullen
Snoqualmie Tribe
4609 Preston-Fall City Road
P.O. Box 670
Fall City, WA

Sgt. Dave Grits
University of Washington Police Dept.
1117 NE Boat Street
Seattle, WA 98105

DISTRIBUTION LIST - NOTICE OF DRAFT EIS AVAILABILITY

Washington State Dept of Ecology
Northwest Office
Enforcement Section
3190 160th Ave SE
Bellevue, WA 98008

Puget Sound Energy
805 - 156th Avenue NE
Bellevue, WA 98008

Ted Muller, Program Supervisor
Priority Habitat & Species Section
Wash State Dept of Fish & Wildlife
16018 Mill Creek Blvd
Mill Creek, WA 98012

Issaquah Press
45 Front Street South
Issaquah, WA 98027

In addition to the names and addresses provided above, a Notice of Draft EIS Availability has been sent to all landowners located within 500 feet of the boundary of the East Lake Sammamish Interim Use Trail, and those people who gave comment during the scoping process.

Public Access Locations

Seattle Public Library Jeanette Voiland, Librarian Government Publications Department 1000 - 4 th Avenue Seattle, WA 98104-1193	Suzzallo Library, University of Washington Attn: Government Publications Department Box 352900 Seattle, WA 98195-2900
Bellevue Library Attn: Cheryl Standley, Librarian Documents Department 111 - 110 th Avenue NE Bellevue, WA 98004	Redmond Library Documents Department 15990 NE 85 th Redmond, WA 98052
Issaquah Library Documents Department 4060 S. 144 th Issaquah, WA 98027	Sammamish Library Attn: John Shealler Documents Department 825 – 228 th Avenue NE Redmond, WA 98053
King County DCFM 500 4 th Avenue, Room 320 Seattle, WA 98104	King County Parks System 2040 84 th Ave SE Mercer Island, WA 98040